DOCUMENT RESUME

ED 471 887 EC 309 338

AUTHOR	Cannon, Michael, Ed.
TITLE	Tempo, 2002.
INSTITUTION	Texas Association for the Gifted and Talented, Austin.
PUB DATE	2002-00-00
NOTE	138p.; Published four times per year.
AVAILABLE FROM	Texas Association for the Gifted and Talented (TAGT), 406 East 11th St., Suite 310, Austin, TX 78701-2617 (annual subscription rate, $35). Tel: 512-499-8248; Fax: 512-499-8264; e-mail: txgifted@yahoo.com; Web site: http://macdns.cc.utexas.edu/ tagt.
PUB TYPE	Collected Works - Serials (022) -- Reports - Descriptive (141)
JOURNAL CIT	Tempo; v22 n1-4 Win-Fall 2002
EDRS PRICE	EDRS Price MF01/PC06 Plus Postage.
DESCRIPTORS	Child Advocacy; Cluster Grouping; Educational Trends; Elementary Secondary Education; Futures (of Society); *Gifted; *Grouping (Instructional Purposes); Homogeneous Grouping; *Humanities; *Mathematics; *Sciences; *Talent
IDENTIFIERS	*Texas

ABSTRACT

This document presents four issues of the Texas Association for the Gifted and Talented's quarterly publication, each of which focused on a particular theme: (1) instructional grouping options; (2) humanities and gifted students; (3) math and science; and (4) a 25th anniversary issue, "Silver Legacy: Shining on the Future for Gifted Youth." Each issue includes articles related to the theme, columns by the Association's president and executive director, a review of the research related to the issue's theme, and reviews of articles and books. Major articles include the following: "Making Wise Choices in Grouping the Gifted" (Karen Rogers); "Cluster Grouping: From Research to Reality" (Lynda Walker and Julie Seymour); "Implementing Gifted Programs at the Elementary Level: Why? How?" (Donna Crenshaw and Kirsten Murphy); "Clustering: Findings from the Field" (Karen Meador and Rosalyn Bratcher); "Creative Machinations: One School's Response to Grouping Gifted Students" (Cheryl Rich); "Ability Grouping + Acceleration + Differentiation = An Exemplary Equation" (Mindy Simms and Donna Crenshaw); "Concentric Circles of Knowledge" (Sandra Kaplan); "The Place of the Humanities in the Gifted Program" (Dorothy Sisk); "A Model for Success" (Fara Green and others); "The Texas Academy of Leadership in the Humanities: Teaching Loving Kindness of the Heart" (Mary Gagne); "Connections: Katy Kids Relive World War II" (Lesli Edge); "Chemistry Olympians' Academic Development and Productivity" (Marilyn Ann Verna and others); "Mathematics for the Young Gifted" (Michael Sayler); "Do the Math" (Colleen H. Elam); "Bringing Up Girls in Science: The First Year" (Tandra Tyler-Wood); "Stand Up for Gifted Students: Advocacy in the School and Home" (Joan Franklin Smutny); "Project SAIL" (Gail N. Herman and Patricia L. Hollingsworth); "Texas Participation in the Duke University Talent Identification Program's 7th Grade Talent Search" (Kristen R. Stephens); "Music Education in a Performance Context" (Karen W. Royer and William R. Nash); and "Parent Focus: On Empathy and Hope" (Tina Forrester). Some individual articles contain references. (DB)

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Tempo

Edited By Michael Cannon

Volume 22, Issues 1-4, Winter-Fall 2002

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Tempo

TEXAS ASSOCIATION FOR THE GIFTED AND TALENTED
Member, National Association for Gifted Children (NAGC)

Volume XXII Issue 1

25TH ANNIVERSARY
SILVER LEGACY: SHINING ON THE FUTURE FOR GIFTED YOUTH

WINTER 2002

GROUPING OPTIONS

Making Wise Choices in Grouping the Gifted

Karen B. Rogers
University of St. Thomas

Scenario: *You are a sixth grade teacher in a K-6 school. You have 27 children in your class, two who are gifted. The local middle school (grade 7-9) is 10 miles away so you cannot manage to send these two children there to take advanced classes. It is up to you and your fellow sixth grade teachers to somehow differentiate the general academic curriculum for these bright children. What will you do? List the steps you would take to ensure that these students get appropriate challenge and access to differentiated curriculum and instruction.*

Step 1: ____________________
Step 2: ____________________
Step 3: ____________________
Step 4: ____________________
Step 5: ____________________

To help you decide what your steps will be, the following table (pages 20-21) may clarify your choices. The table summarizes what the research has had to say about the impact of a variety of grouping options, both full-time and part-time, whole group and small group, upon students with gifts or talents. In a recent update of the research on grouping, I found that the research continues to support the academic and social impacts of this assortment of strategies, but that some new forms of grouping have been studied. What this table adds, I hope, are the school structures that support each grouping strategy. More importantly, an attempt has been made to identify the gifted or talented students who would best benefit from each strategy. Student traits have been divided into four categories: (1) Cognitive Functioning Levels (CF); (2) Personal Characteristics (PC), Learning Preferences (LP); and (4) Interests (I), both academic and nonacademic.

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FROM THE PRESIDENT

James Collett

One of my favorite anecdotes relative to the idea of grouping comes from an old anthropology book, Ruth Benedict's *Patterns of Culture* (1959). While her anthropological speculations no longer remain viable, the story does retain its value. Benedict's studies included fieldwork with an old chief of the Digger Indians, one of the more impoverished Native American groups in the Southwest. One day he shared this story with her.

"In the beginning, God gave to every people a cup, a cup of clay, and from this cup they drank their life. They all dipped in the water, but their cups were different." He concluded, "Our cup is broken now. It has passed away."

Captivated by this image of a cup of culture, I asked my gifted students to draw and explain the cup of American culture. They produced a fascinating collection of vessels—from variegated mugs to chalices and goblets. Many painted bright multi-colored cups; others chose darker hues. Some traced cracks and chips in the American clay; others highlighted issues of faith and freedom. In some way, each of them alluded to the inescapable presence of groups in American life.

All human groups group. We combine; we assign; we classify. We sort the world around us. We delineate our possessions and those of others. We identify, select, include, and exclude our fellow beings. George Lakoff and Mark Johnson (1980) believe this process is integral to our frames of reference. "For human beings, categorization is primarily a means of comprehending the world." (p. 122).

A group is a set of things combined. When that concept involves people, it initiates discussions about membership. Inherent in the meaning of group is distinction, those within and those without. The actions flowing from such sorting produce new labels. We, or they, become teams, gangs, enemies, colleagues, fraternities, the chosen, and the untouchables.

Sometimes we join groups (in school, for example) by placements—voluntary, semi-voluntary, and involuntary. At other times, our membership flows from our vocation (TAGT) or our avocation (TAS, the Texas Archeological Society). We belong to groups by the force of choice (Lions Club) or the choice of force (inmates of Lynaugh Prison Unit, near Fort Stockton). Emotions, too, drive us into

(see COLLETT, page 14)

Tempo
Volume XXII Issue 1 Winter 2002

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TAGT *Tempo* is the official journal of the Texas Association for the Gifted and Talented. It is published four times a year in January, April, July, and October. The subscription is a benefit for TAGT members. Annual dues are $35. — $55.

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Address correspondence concerning *Tempo* **content** to: *Michael Cannon, TAGT Editorial Office, 5521 Martin Lane, El Paso, TX 79903*. Call the editorial office at 915/ 778-3988, FAX 915/ 779-2625, or e-mail: cannon@whc.net.

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EXECUTIVE DIRECTOR'S UPDATE

A Compass for Texas Gifted Children and Youth

Amanda D. Batson, Ph.D.

In September 2000, the TAGT Executive Board adopted an oath of office to which each officer and director would pledge their allegiance. The 2001 Executive Board was the first group to be sworn in using this oath; each officer and director pledged as follows:

> I do solemnly swear that I will serve to the best of my ability and judgment in conformity with the Bylaws of the Texas Association for the Gifted and Talented. I will uphold and support the mission and goals of the Texas Association for the Gifted and Talented. In all my acts, I will be governed by the principles of honesty, justice, and fair play, and in every manner possible endeavor to promote and safeguard the best interest of TAGT, the welfare of its membership, the high purpose of our association and the gifted and talented for whom we advocate.

On December 8, 2001, the 2002 Executive Board was installed with each officer and director promising to lead according to the oath of office. Service on the TAGT Executive Board as with other volunteer work is an honor and privilege but it is work. Your elected leaders donate their time, expertise, passion, and resources to maintain true north on the compass for Texas gifted students. Please join me in congratulations to the 2002 Board and pledge your support to these leaders and their efforts on behalf of Texas gifted youth.

Much of the TAGT work is active advocacy – telling the stories of gifted children, explaining the compelling needs of these youngsters, and working for laws, funding, and policies to serve, protect, and defend Texas gifted and talented students. Even though the Texas legislature meets for 140 days every other year, TAGT continually works to advance the causes of Texas gifted students.

During fall 2001, TAGT directors presented testimony before sub-committees of the Joint Select Committee on Public School Finance. Sub-committee meetings were held in several cities including Amarillo, Brownsville, El Paso, and Galveston. At these four meetings, TAGT directors spoke to key issues that impact education of gifted students.

More than 340,000 students in Texas public schools have been identified as gifted and talented. This is about eight percent of the more than four million students currently enrolled in Texas public schools. The gifted and talented student population is growing at a rate faster than the growth in the total public school population. However, funding for gifted and talented students in Texas has not kept pace with the growth in the number of GT students.

The State of Texas has realized that gifted and talented students deserve special attention. The Texas Education Code requires each school district to identify and serve gifted and talented students.

Educators of gifted and talented students must obtain the proper training and support to meet the needs of this special population. TAGT recommends required certification for teachers of gifted and talented students just as Texas requires certification for teachers of other special populations.

Texas must not forget that gifted children are at risk. Without proper opportunities and instruction, gifted and talented students become frustrated and disinterested with an educational system that does not challenge them. Gifted students fall through the cracks – even dropping out — if they do not receive the appropriate services they need and deserve.

To support school districts in their legally required services for gifted and talented students, Section 42.156 of the Texas Education Code created a gifted and talented student allotment per school district. Every year each district is entitled to an annual allotment equal to the district's adjusted basic allotment, multiplied by .12 (or a greater amount provided by the legislature). However, this annual allotment is capped if a school district has identified five percent of its students as gifted.

Therefore, no matter how many gifted and talented students are identified in a district, it only receives the gifted and talented allotment for up to five percent of its total student population. Considering that eight percent of Texas'

(see BATSON, page 14)

Cluster Grouping:
From Research to Reality

Lynda Walker
Julie Seymour

Educators have recently embraced the mantra that ability grouping has very few positive results for the students in their classrooms. There has been research, however, that supports the fact the gifted students do benefit greatly from being grouped with their intellectual peers for a good part of the instructional day. In its Policy Statement on Ability Grouping, the National Association for Gifted Children (NAGC) states:

> "Grouping allows for more appropriate, rapid and advanced instruction, which matches the rapidly developing skills and capabilities of gifted students. Strong research evidence supports the effectiveness of ability grouping for gifted students..."
>
> (Approved, 11/91).

Cluster grouping is one type of ability grouping. It is the practice of grouping four to six identified gifted students of a grade level, usually those in the top 5% of the grade level, in the classroom of one teacher who has special training in teaching gifted students as well as a commitment to their educational development. The rest of the class is heterogeneously mixed.

Research on cluster grouping was examined as well as a small sampling of reactions from those in the field who have directly seen this type of grouping in action. Pairs of principals, teachers, students, and one parent from Plano ISD in Texas were interviewed. They offered practical insight into the management of cluster grouping based on their experiences. All were associated with campuses that utilized a modified version of cluster grouping where gifted students were placed in cluster groups and regrouped for high ability language arts and/or math classes. While they did not participate in programs that had full time cluster grouping per se, they felt their experiences enabled them to speak to the issue.

There are advantages as well as disadvantages to cluster grouping as it relates specifically to administrators, teachers, students, and parents. These will be discussed as well as recommendations on maximizing the potential of this grouping arrangement.

ADMINISTRATORS

Advantages Gifted students achieve at significantly higher levels than equally gifted learners when they are cluster grouped for differentiated instruction within an otherwise heterogeneous classroom (Kulik & Kulik, 1991). The gifted students were not the only ones with higher achievement scores, as overall test scores also increased (Gentry, 1996). A principal who was interviewed concurred by saying, "We have higher test scores and fewer discipline problems because teachers have more time to extend and add depth and complexity to the curriculum when they do not have multiple levels of students."

Cluster grouping is cost effective and facilitates ongoing programming for gifted and high achieving students in the regular classroom (Hoover, Sayler, Feldhusen, 1993). It is a very realistic option for those districts that encompass a large area and cannot create magnet schools and it is an attractive alternative at the secondary level when the number of students is not enough to create an advanced program in a specific subject area (Winebrenner, Devlin, 1993).

Disadvantages One interviewed principal could think of no disadvantages to clustering, although she did relate a few cautions. She noted that unless groupings were made correctly, gifted students might not have an opportunity to work with students from all cognitive levels. Additionally, she commented that many administrators have the misperception that cluster grouping is "elitist" for the gifted students; this must be addressed in order for the arrangement to gain acceptance.

Researchers have noted other drawbacks, such as the predicament presented when students move in from other schools once the cluster group is set up and the student classroom limit has been reached (Winebrenner, Devlin, 1996). One of the teachers questioned noted that this has had a negative effect in the past in delivery of program services when gifted children were unable to be placed with other clustered students. Finally, there are also pressures by parents to have their children placed in the cluster group (Winebrenner, Devlin, 1996).

TEACHERS

Advantages Principals interviewed noted that their teachers found cluster grouping facilitates lesson planning, curriculum pacing, and communication with parents. A teacher added that it aided in the assessment of students' needs and strengths and the development of appropriately challenging work. This type of grouping eliminates disruption in the regular classroom that may occur when gifted students leave for instruction. Scheduling out-of-class activities with a resource teacher is easier when there is only one teacher's schedule with which to deal (Winebrenner, Devlin, 1996). There is also a greater continuity of instruction when only one or two teachers share students.

Disadvantages Teachers of the cluster group find that time is a big constraint for them. They cite a need for more preparation time as well as more time to work with the gifted learners in their class. Cluster teachers also noted greater difficulty in managing the differentiated classroom (Hoover, Sayler, Feldhusen, 1993). The classroom teachers who were interviewed cautioned that a wide range in learning needs creates difficulty in modifying for all learners. One of these teachers commented that she was the only instructor at her grade level trained in gifted education; yet each of her colleagues taught a gifted cluster. Consequently, there were minimal modifications made in their classrooms due to their lack of training.

STUDENTS

Advantages Cluster grouping reduces the restraints on learning by gifted students, allowing them to learn at their own pace and develop to their full potential (Schiever, 1994). Both students and principals from the interviewed group observed an increase in student interaction as well as improved behavior. An important part of programming for gifted learners is time spent with their intellectual peers. (Rogers, 1991.) Gifted students who were interviewed looked back on their classroom experiences and noted that in this type of room they had a greater chance of finding peers who held the same interests. They felt being smart was "okay;" and were more motivated to participate. The pressure not to raise their hands was no longer a factor. While the teachers responding to the interview recognized the wide range of abilities present in a cluster grouped classroom as a drawback to them as instructors, one of them described it as an asset for the students. She saw it as an opportunity for all learners in the class to interact with students of varying abilities. This gave each of them a different perspective of the types of learning strengths and weaknesses that others possessed. The results of one elementary school study on cluster grouping supported this assessment. The researchers found that 84% of the responding teachers felt that the relationship between gifted and the nongifted students in the cluster class was (or change relationship to relationships) positive (Hoover, Sayler, Feldhusen, 1993). The parent who was interviewed noted that gifted students "may find themselves with others who value their skills and abilities in a different way from most of their age peers." In summary, she said, "Perhaps the biggest benefit to the gifted students is the opportunity to work in a safe environment with a teacher who enjoys working with gifted children and understands their learning styles and social/emotional needs."

Disadvantages The students who were interviewed saw no negative aspects to cluster grouping from their point of view. However, they did note that "there may been students who resented us because they were not in the same classes." A teacher commented that as students were clustered with each other year after year, they could at times become "too familiar." Group dynamics may promote either a friction or a closeness that interferes with academic work.

PARENTS

Advantages Parents note a lessening of frustration on their part, as their children are happier in school (Hoover, Sayler, Feldhusen, 1993). One parent interviewed simply noted that "happy children" are the ultimate advantage of cluster grouping. One teacher supported this observation by saying that parents of gifted students appeared to support this type of grouping as they felt they had a greater assurance that their child was being given the "appropriate academic support."

Disadvantages While all of the interviewed teachers reported that they have had no parent of a gifted individual complain of a negative impact by this type of grouping, this is not always the case. In one study, some parents have noted that the concept of cluster grouping is difficult to understand from their perspective. Others thought that the requirements entail too much extra work, and still others thought it was not challenging enough. This study also found that parents of those students in the classroom with the clustered students, but not part of the cluster groups have complained that the cluster takes too much time away from the other students in the class (Hoover, Sayler, Feldhusen, 1993). The parent who was interviewed disagreed with researchers who support the idea that there should be no more than 6-8 gifted students in each cluster group. She remarked that "gifted students have a wide variety of

(see WALKER & SEYMOUR, page 15)

Implementing Gifted Programs at the Elementary Level: Why? How?

Donna Crenshaw
Kirsten Murphy

It is undeniable that the American education system has changed drastically during the past. Indeed the educational pendulum has swung in many directions, bringing about changes in the basic design of the classroom, changes in discipline methods, and frequent changes in curriculum. With regard to gifted and talented programs, the educational pendulum has also taken some dramatic swings, both favorable and unfavorable in this area of instruction: programs have been instituted and then eliminated, or simply ignored and not offered at all due to the erroneous belief that gifted students "do well no matter what kind of education they receive" (Gallagher, 1991).

As we enter the 21st century, it becomes apparent that the skills our students need to successfully compete globally have changed from industrial-related to technology-related, with an emphasis on higher levels of thinking and problem solving (Gallagher, 1991). According to a report offered by the United States Office of Educational Research and Improvement, most of the nation's bright students "continue to spend time in school working well below their capabilities . . . that so many of our students work below their potential has grave implications for the nation" (National Excellence: A Case for Developing America's Talents, 1993, p.1). With the future in mind, educators and administrators have intensified their search for curriculum, strategies, programs, and activities that will challenge their students, encourage higher levels of thinking, and promote problem solving strategies. If we follow the suggestions made by Sternberg in the 1990's and "define student aptitudes more carefully, provide creative instruction more systematically, and assess more powerfully," our students will achieve more, and be better prepared for their future (Sternberg, 1996).

While educators realize that "every class contains students with different interests, problems, and talents; and . . . whole-group instruction lessons geared to the 'average' student are bound to be too difficult for some learners in the class and too easy for others . . . the 'one size fits all' instructional method is the predominant practice in the majority of classrooms throughout the country" (Westberg & Archambault, 1997). There are many factors that contribute to the aforementioned methodology, such as lack of familiarity on the part of educators with programs, strategies, and activities designed to promote higher levels of thinking, and a lack of training on how such strategies should be implemented (Westburg & Archambault, 1997). Researchers concerned with the use of a "one size fits all" method of teaching have examined both the benefits of nurturing talent in students, as well as the problems that result when student potential is not tapped into and meaningfully put to use within the classroom. The results of many research studies document that students who are unfulfilled, under-/unchallenged, unproductive, or unmotivated in school present problems in school as well as in society.

Students who are under-/unchallenged or unmotivated often:

- create complex problems for schools (Baker, Bridges, & Evans, 1998);
- are behavior problems (Anonymous, 1999);
- become truants (Anonymous, 1999);
- are potential dropouts (Schneider, 1999);
- are a source of both teacher and student frustration (Berger & Delisle, 1990);
- stifle educational improvement/reform (VanTassel-Baska, 1998);
- exhibit lower student performance;
- decrease campus performance, test scores, scholarships, awards, etc. (Clark, 1997; Crenshaw, 1995).

These students may also create difficulties beyond the classroom such as:

- family problems (Baker, Bridges, & Evans, 1998);
- personal problems related to poor self-concept/poor achievement, a waste of human potential (Schneider, 1999);
- loss of American productivity and cultural development (Fetterman, 1999).

Conversely, the challenged, the motivated students generally demonstrate increased:

- expectations (Miller, 1990);
- self-esteem (Berger, 1989);
- work ethic (Tieso, 1998);
- motivation (Berger & Delisle, 1990);
- curiosity (Shaunessy, 2000);
- interest, enthusiasm, and enjoyment of course (Berger & Delisle, 1990; Lynch, 1994);
- thinking/problem solving skills (Passow, 1990; Berger, 1989; Karnes & Bean, 1990);
- academic skills/academic achievement (Berger & Delisle, 1990; Office of Education Research and Improvement, 1993; Passow, 1990);
- content retention and better academic preparation (Powell, 2000);
- desire for knowledge/intrinsic motivation (Berger & Delisle, 1990);
- interest and acceptance of talent and talent development (Cooper, 1998; Rosselli, 1998);
- self-expression (Tieso, 1998);
- academic risk-taking and creativity (Haskew, 1995; Marshall, Ramirez, Plinske, & Veal, 1998);
- leadership skills (Tieso, 1998; Cooper, 1998); goal setting (Berger, 1989);
- decision-making skills (Berger, 1989);
- future accomplishments (Passow, 1990).

School performance indicators show positive influences by students who are challenged/motivated through increased and/or improved:

- teacher and staff expectations (Crenshaw, 1996);
- class/school climate (Tools for Schools, 1998);
- student attendance (Tools for Schools, 1998);
- innovative, risk-taking instruction (Crenshaw, 1996);
- promotion and graduation rates (Tools for Schools, 1998);
- test scores, school report card, winners of academic scholarships/competitions (Crenshaw, 1996; Office of Education Research and Improvement, 1993; Johnson, 2001);
- parent satisfaction (Crenshaw, 1996).

With such research espousing the benefits that result when the talents of our students are nurtured, why is it that the needs of many students are still left unmet by today's educational system? While "we readily accept the need for expert preparation of talented adults" such as our doctors and lawyers, we "agonize over whether these same students should be challenged at the elementary school or secondary school level" (Gallagher, 1991). If we as a nation value highly trained adults, capable of creative thinking and problem solving, why not begin to teach our students these same processes at the beginning stages of their educational career and continue with them throughout so that these become inherent of thinking processes for all our citizens? To do this requires work by educators, administrators, parents, and legislators to implement and support programs that value these processes and to require their inclusion in authentic, meaningful activities.

Throughout the nation, many standards have been implemented detailing the ways in which districts can implement gifted programs. Some of these guidelines include, but are not limited to, the District Effectiveness and Compliance Reference Guide (1999), National Excellence: A Case for Developing America's Talents (1993), SCANS 2000: Secretary's Commission on Achieving Necessary Skills (1991), Educating Able Learners-Programs and Promising Practices: A National Study Conducted by the Sid Richardson Foundation (1985), and the Texas State Plan for the Education of Gifted and Talented Students. Distributed in 1997, this state guide identifies the standards for the three possible levels assigned to gifted education programs in Texas: acceptable, recognized, and exemplary. These documents, as well as others, are consistent in their recommendations that school programs provide instructional opportunities that appropriately challenge students (Crenshaw, 2000). Using the categories listed in the Texas State Plan for the Education of Gifted and Talented Students, the following suggestions may serve as a guide in creating an academic program or special programs/offerings appropriate for elementary students.

Program design should:

- provide comprehensive services for students that are appropriately challenging in core subject areas;
- employ flexible pacing and independent investigations;
- offer valuable, as well as interesting program options for students, rather than merely providing programming mandates;
- begin small and then maintain fluid programming and expand options (Crenshaw, 2000).

Student assessment should:

- be broad-based;
- advocate inclusive versus exclusive assessment;
- maintain/encourage effort from all student groups (Crenshaw, 2000).

Curriculum and instruction must:

- provide challenging options/programs/courses for all types of students;

(see CRENSHAW & MURPHY, page 16)

Clustering: Findings From the Field

Karen Meador
Rosalyn Bratcher

Consider, if you will, the journey traveled in the pursuit of effective services for gifted students and includes information for teachers, administrators, and parents. Most district services for gifted and talented students consist of multiple integrated components; however, this article describes only one of these: effectively clustering of gifted students in regular classrooms. It presents information regarding why districts should carefully evaluate the effectiveness of pullout programs and consider utilizing cluster grouping instead of or in conjunction with this type of service. For purposes of this article, pullout classes refer to specific periods of time during the week during which a group of gifted students work with a teacher on their campus in a separate classroom and then return to their heterogeneous classroom.

Understanding the Problem

The success of pullout programs, one effective way of serving gifted students, is most evident when talking with the students. During conversations with gifted students, youngsters mention the "neat" things they do in the pullout class and the "cool" projects they complete. Some discuss the opportunity to be creative and to look at things in unique ways, while others discuss the adventures of traveling to a new country while remaining in their classroom. The enthusiasm of these students is genuine and the collective power of gifted students together is almost overwhelming. Yet, there is something missing.

It is not always evident from listening to student explanations of curriculum in pullout classes that the instruction results in modification of "the depth, complexity, and pacing of the general school program" (TEA, 2000, p. 7). It is frequently obvious that students are learning about things that are not being presented in the regular classroom and that they dig deeply into some topics; yet, shouldn't curriculum for the gifted also offer opportunities for changes in pacing as well as depth and complexity in all four core subjects? For example, precocious math students may not have an opportunity for acceleration in the general pullout program that meets a few hours a week. Also, it can be difficult to determine whether the curriculum for some pullout classes are steeped in student interests and needs in the four core areas or based on the experiences and expertise area of the pullout teacher.

It is often noted that when student services change from a pullout in the elementary school to differentiation in the four core area classes at middle school, students wonder what happened to the gifted and talented program they knew and loved. Students seem to be unaware of the need for academic rigor as part of a balanced gifted program.

The information in this section as well as other concerns converge upon the problem of how districts might best utilize their resources to provide age-appropriate academic rigor for gifted students in the four core areas. Cluster grouping in regular classrooms is an option worth discussing. In this article, cluster grouping refers to the grouping of several gifted students within an otherwise heterogeneous classroom of students.

Cluster Class Demographics

Districts moving toward the clustering model train elementary and middle school teachers in the foundational 30-hours of gifted education and six-hour updates. The professional development provides teachers with appropriate strategies for meeting the needs of gifted students. Yet, even veteran teachers with expertise in curriculum differentiation find it difficult to meet the needs of all populations of students in their classroom.

Often when districts move to the clustering model, regular classrooms may contain three or fewer gifted students within a heterogeneous grouping. Some of these classrooms serve not only gifted students, but also students for which learning is extremely challenging creating a broad gamut of abilities and interests. Cluster teachers express concern that they are unable to meet the extremes of needs in their classroom even though they understand how to differentiate.

Davis and Rimm (1994) define cluster grouping as "putting a selected group of about five to ten students together in one regular class, along with 15 or 20 other students" (p. 139). Clustering gifted students in specific classes can present scheduling conflicts in middle school and some students find themselves in solos and duos rather than clusters. This nullifies their opportunity to feel less isolated and less stressed, which should be a significant benefit of clustering (Winebrenner and Devlin (1996).

Even when appropriately sized cluster groups exist, cluster teachers find it difficult to navigate the chasm of extremes in the makeup of their total classes. Therefore, it is necessary to consider how best to achieve heterogeneity while diminishing the range of student needs in a single classroom.

Recommendations

Cluster Size and Class Composition

Larger sized clusters of gifted students with a minimum of eight to ten students achieve part of the solution. Heterogeneity still results when the cluster classes are composed of gifted, high-ability, typical, and struggling students. However, students with other conflicting special needs should not be placed in the cluster-group classes. Those students are also placed in other heterogeneous classes thus providing the least restrictive environment for all students. This composition allows teachers to deliver curriculum based on student need without struggling with the inordinate task of dealing with significant extremes.

. . . How can we best serve the needs of gifted and talented students who are "**gifted all day**?". . .

Teacher Selection

Although appropriate configuration of cluster classes is essential, the teacher is the essence of this solution. It is important to consider a minimum of the following in selecting teachers for cluster group classes:

- an individual's philosophy regarding giftedness;
- the person's flexibility and willingness to work through change;
- a teacher's desire for continuous learning.

A cluster teacher's philosophy regarding giftedness should include a belief in the equal educational rights of gifted students. This teacher believes that there is equality when every child has an opportunity to receive instruction at his/her challenge level. Cluster teachers need to become champions for gifted children and display a true enjoyment of unique human qualities and idiosyncrasies. Cluster teachers who share the philosophy of the district regarding services for gifted children will find it much easier to work with the district's suggestions and requirements pertaining to differentiation. A teacher can truly believe in the rights of gifted students, yet be reticent to provide the type of services a district initiates.

Cluster teachers need to be willing to think flexibly and to work through change. Services and curriculum are dynamic, and it is impossible for a district to provide cluster teachers with exactly what they need for each group. When selecting teachers for cluster groups, seek those who enjoy problem solving and find excitement in the journey into excellence.

Continuous learning is a significant component part of working with gifted students. Cluster teachers should not only work to instill the desire for this in their students, but emulate it as well.

District Support of Teachers

Cluster teachers who have completed their thirty hours of gifted education training as required by the Texas Education Agency have the foundation of the scaffold needed to reach true understanding of the nature of giftedness and to garner the techniques and expertise required to accelerate and add depth and complexity to curriculum. Cluster teachers deserve support beyond the thirty-hour training and annual six-hour updates. Provide instructional support staff for all teachers who work with cluster groups, in order that they may receive help in handling both the academic and affective needs of gifted students. It is suggested that cluster teachers have an opportunity to request individual meetings during planning times or after school, and receive support on a regularly planned basis during campus team meetings for cluster teachers and meetings with grade level cluster group teachers from other schools. During the latter, teachers have an opportunity to share successes and concerns and to plan differentiated curriculum based on their grade level standards.

Information for Administrators

The principal must ensure that cluster groups of gifted students are of sufficient size to provide numerous opportunities for students to substantially interact with gifted and non-gifted peers. As mentioned earlier, if only one or two students comprise a cluster, students may feel

(see MEADOR & BRATCHER, page 18)

Creative Machinations: One School's Response to Grouping Gifted Students

Cheryl Rich

With the pressures of testing and curriculum mandates, when do we have time to address the needs of our gifted and talented students? It sometimes takes extraordinary machinations to accomplish this task. At Nimitz Elementary School in the beautiful hill country of Kerrville, Texas, we have used a creative scheduling approach. Our school serves students in kindergarten through the fourth grade and the Gifted and Talented (GT) Program addresses the needs of our identified students in the third and fourth grades. Our principal, Ted Schwarz, felt that a pullout program would possibly solve the dilemma of time availability. He wanted a teacher not burdened with preparing students for the TAAS test, and since I teach kindergarten full time and have an interest in gifted education, Mr. Schwarz offered the idea to me. Limited on space as far as classrooms, our facility presented a challenge to us to look for the options we might have available.

Scheduling Personnel and Space

The creative scheduling approach included the cooperation of several teachers, the students, and other staff members. At our school, we served eight students last year. We needed a room to meet in and a time agreeable to all concerned. Like a domino effect it all began to fall into place. Interested in the challenge, I began to prepare during the summer for the curriculum. I believe one component essential to the program included access to computers. With the cooperation of the aide, we scheduled to meet in one of the computer labs. The third and fourth grade teachers required a time that would not take away from TAAS related subjects. We discovered that a 50-minute block every afternoon coincided with an appropriate time for our skillful aide to direct my kindergarten class. This included the cooperation of the grade level team for the use of the aide. I chose to begin the program about four weeks into the school year enabling me to get my kindergarten class into a routine. The children had time to familiarize themselves with procedures and learn the environment of the school. Guidelines already set for classroom activities and expectations gave the aide responsible for the class time to build relationships with the students. While I did some individualized assessment and teaching, she assumed an authority figure and took charge of the activities during the afternoon. When the GT program began, the students in my kindergarten class easily transitioned to my absence. Our program ended with the 5th six-week grading period, allowing me to return to my kindergarten class to finish up the year. I did the testing and documentation necessary for the end of year reports and recommendations.

Scheduling in this manner allowed the third and fourth grade students more responsibility for their learning. Not only did they have to remember to come to class at the appropriate time, they also had to use their time together to accomplish their tasks. Many times they would work outside of class on their own because they wanted to do more. Our deadlines needed flexibility. I scheduled the units of study, but if the students wanted to spend a little more time on an area, we could have flexibility in the timeframe. When we did some of the independent studies and a few students needed more time to complete their task, we extended the due date and presentation date to accommodate the students. The others, if finished, would do activities on the computers, or logic problems. This structure enabled us to accomplish many things.

Setting

The setting of our class, the computer lab, enabled us to meet as a large group, small groups and individually depending on the task at hand. Even though individual students from other grade levels use this room for Accelerated Reader testing, this did not cause a distraction most of the time. The room, set up with a round table area in the center, proved large enough to seat every GT student and the teacher comfortably. The computers arranged around the perimeter of the room provided enough free floor space to work in small groups without too much distraction.

Characteristics and Curriculum

The make-up of the GT group consisted of six fourth grade students and two third grade students. In this class of two boys and six girls the small group activities easily created two teams of four. The varied activities allowed us to do grouping by random choice, personal choice, or by assignment. Using the scientific method to systematically gain knowledge of

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plants, leaves, dirt and rocks, we then went on to individual studies. The students broadened their skills by making use of the Internet, the word processor, the library and some additional outside resources including interviews with community members. One area of study included an opportunity to participate in an Internet based archeological expedition, "Mayaquest" sponsored by Lifetouch Pictures. This experience stretched all of us to deepen our appreciation of other cultures, improve our research techniques, and find specific information in a new environment. In analyzing common board games (and later, card games) we constructed rubrics based on the students' observations. The students then created their own games, played them and rated them according to the rubrics they developed.

The Affective Component

During these activities it became apparent that these students needed some skill development in the areas of working with others because of their strong leadership qualities. In consulting with our school counselor, and with her guidance, I decided to address this problem with the group.

An approach took shape in the form of a "Personal Growth Circle." This activity consisted of sitting in a circle of chairs and having an object to pass around. The first time we did this activity, I selected a new paintbrush. We talked about "painting our feelings with words" and had only a few basic rules. I would read a question designed to address a problem I had observed. Students answered in turn, spoke when they held the paintbrush, and only spoke for themselves. Students allowed others to speak without interruptions. After our first session, the new understanding of each person in the group caused a resolution of much of the tension. The discoveries of common emotions in some of the events lead to a few spontaneous apologies.

During the next week, the students asked when the next "Personal Growth Circle" could occur. I suggested we do the activity on Friday, and this time the students would submit their own questions ahead of time on index cards. Since the students had already experienced the process, they conducted the activity almost independently.

Future Directions

The program we began last year worked so well we plan to continue the same basic format this year. We hope to change some of the content and focus in specific areas as we learn by doing. One of the major changes focuses on the area of coping skills. In the book, *Coping for Capable Kids - Strategies for Students, Parents, and Teachers*, by LeoNora M. Cohen and Erica Frydenberg, I learned that "gifted students were reliant on fewer coping strategies (only about six) than their normal peers (usually about nine)." This confirmed the need to help these students develop their interpersonal skills. They also need to increase their coping tools for problems in general. An experience with a labyrinth walk available to us locally, introduces the students to organizing thoughts with left and right brain exercises. Journaling with a finger labyrinth and daily time set aside for reflection continues this through the year.

An interactive computer program to study the skeleton composes our science unit with some other resource materials. Independent studies follow the science unit then another Lifetouch webquest about Ancient Greece in the spring. We finish our program with a study of the book, *Motel of the Mysteries* by David Macaulay, with creative activities to follow up.

Conclusion

Creative scheduling, in addition to a team effort across the campus, made this program successful. The widespread support throughout the school encouraged the continued effort. The cooperation evidenced by the teachers, students, and those invaluable aides resulted in a better way to serve our gifted students.

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Ability Grouping + Acceleration + Differentiation = An Exemplary Equation

Mindy Sims
Donna Crenshaw

Students come in many sizes, shapes, and styles, and with varied learning abilities. Some students are gifted in many areas of study, while others are not as fortunate. Because of these differences, students respond and react differently to different instructional configurations. For gifted children, research indicates that ability grouping coupled with acceleration and differentiated curriculum is the best instructional arrangement.

A typical public school classroom today contains a mixture of all types of learners. It is not uncommon to find a student distribution much like a bell curve — a small number of gifted students learning and studying along side an equivalent portion of slow learners and a large group of average students. This mixed ability grouping does not allow maximum instructional benefit for all the students. Such a class suppresses the level of advancement of the gifted students and may contribute to a loss of self-esteem in the lower ability students whose performance is constantly compared to that of high achieving peers (Loveless, 1998).

Research shows that 84% of instructional time in a mixed-ability class is spent on little or no differentiation of instruction for the gifted student (VanTassel-Baska, 1998). Gifted children become frustrated with limited or delayed progress in a mixed ability class. While the teacher must tailor the pace, complexity, and delivery of subject matter to the majority of students, content repetition combined with pace most appropriate for the majority is inappropriate for the gifted students. Because they require less repetition than most students, they become frustrated and disinterested, sometimes leading to poor habits due to boredom or lack of interest (Kottmeyer, 2001).

Acceleration allows for same-age students to learn at different rates and levels of understanding. Benjamin Bloom notes that, "people learn at different rates in different ways with different subjects" (cited in VanTassel-Baska, 1998). This is especially true for gifted students. They learn, read, compute, analyze, and think differently than the majority of their classmates. Gifted students do not just need more of a subject, they need more challenge, more acceleration, and more in-depth study within that subject, thus providing justification for ability grouping where flexible pacing is possible.

Placing students in grouped classes in all subjects based on scholastic achievement in one subject, commonly called tracking, is an injustice as is placing students in mixed classes in all subjects. Learners with gifted ability in a subject area deserve to be in that subject with peers of similar abilities. Different levels of each subject should be taught to different groups based on student ability. This allows students to interact with different students of similar abilities and eliminates the potential of students placed with the same students all day. In addition to grouped classes, heterogeneous classes might be included for non-core, elective, or other classes.

Most school mission statements declare the intention of educating every child to his or her level of potential; however, the gifted sit frustrated and unchallenged in classrooms where their instructional level exceeds that of their peers. Ability grouping alleviates the problem for both the gifted student and the teacher. The teacher can work to accommodate varying student abilities within a narrower range class. The gifted student can work with peers who think and reason at a similar faster pace, thereby allowing the group to better achieve its level of potential and fulfilling the school's mission.

Earnest Newland notes that gifted children placed in classes together do not think or act as if they are better than anyone else. On the contrary, they are humbled by discovering classmates who know more than they do (Newland, 1976). L.S. Hollingworth states, "Work with competitors of one's own caliber tends to starve conceit, rather than feed it. Observers have recorded that a pupil coming into special classes often meets a successful rival for the first time. If he remains in the special class, he is likely to leave it far less conceited than when he entered it." Additionally, "Many of our pupils had their first experience of being equaled or surpassed at school work when they entered the special class. Conceit was corrected, rather than fostered, by the experience of daily contact with a large number of equals," and "If we really want to create a person with elitist attitudes, all we have to do is place him in an unchallenging program for 12 years and allow him to be the smartest one in the class...doing his homework in class, never taking home a book, and acing tests without having to study. By the time he graduates, he will be convinced that he's the 'top banana': he will have a ballooned sense of his own importance and place in the universe. And he will either become aggressive toward anyone who might challenge his position or fall apart and threaten to jump out the window when he goes off to some ivy league college and discovers there are hundreds of other students as smart as he is or even smarter" (Hollingsworth, 1926).

In a time of public scrutiny, it may be considered politically correct to ensure that all students are treated equally. While socially appropriate, this concept is not academically sound. Is it appropriate for the student who can read to be forced to work on phonics sheets with the rest of the class? If a child understands fractions and percents, why hold her back while the rest of the group masters adding and subtracting two digit numbers?

. . . the gifted sit **frustrated** and unchallenged in classrooms where their instructional level **exceeds** that of their **peers**. . . .

Schools do not allow all who aspire to be cheerleaders, nor do they allow every student to be the quarterback of the football team. Not every student will be the superstar pitcher on the baseball team or the drum major of the band. These positions are earned by those who excel in their categories. Why, then, can't the intellectual students be allowed to excel in academics? Why are they held back when they excel in their category? "To throw a non-swimmer into the deep end of the pool is inhumane. To demand that an Olympic swimmer remain in the shallow end until the rest of the class learns to swim is a ludicrous restraint (DeVries, 1999)." This analogy cleverly demonstrates the need for appropriate instructional pace and level.

Eighty years of research document the positive outcomes of accelerated grouping to enhance learning, increase motivation and self-esteem, and expand extracurricular participation (VanTassel-Baska, 1998). Whereas some students participate in multiple accelerated classes, others benefit from participation in only one. Such scheduling allows students to achieve in their areas of specialty and be appropriately challenged in other areas.

Each person has a need to interact with those like himself. This need is met when students collaborate with intellectual, social, athletic, artistic peers. Self-esteem and learning increase when persons of comparable ability interact in learning.

According to Arlene DeVries, "Students placed in classes with those of lesser ability develop feelings of isolation, frustration, and withdrawal." The greater one's difference in ability, the more stifled and inhibited he must be to fit in with peers. "In order to develop their full potentials, the special talents of gifted children must be valued and encouraged" (DeVries, 1999).

Ability grouping based on acceleration and differentiated curriculum provides optimal instruction for all students. Flexibility in curriculum/instruction and grouping practices that allow for acceleration and flexible pacing serve to meet the instructional needs of students and provide a program that encourages and promotes the potential of gifted learners.

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(see SIMMS & CRENSHAW, page 19)

(from COLLETT, page 2)

groups, from our angst (MADD) to our anger (KKK). Groups have provided sources of our highest aspirations (Christians, Moslems, Jews) and fuel for our darkest incarnations (Christians, Moslems, Jews).

James Madison, in the *Federalist Number 10*, argued that much of America's strength lay in the fact that our nation is composed of numerous, rather than few, groups (Madison called them factions). As he put it, our factions, categorizing us across a broad spectrum of ideas, causes, hopes and fears, both divisive and unifying, construct "a republican remedy for the diseases most incident to republican government."

As we examine the issue of grouping, we might perhaps ponder the implications of this term beyond the educational realm. Grouping is inevitable, as normal to us as breathing. However, we can view through more carefully refined lenses the implications of what we frequently consider simple and obvious.

In closing, I think we should recall a final example of a group of people who shaped a new and different cup. Twenty-five years ago, a small band of Texans gathered in Austin to form a new organization dedicated to serving and advancing the needs of another group, the gifted and talented students of the state. Their guiding belief was that these children had special needs and potentials and that, without proper encouragement, support, and challenge, these young people might have lives far less fulfilling. They chartered this new organization as an alliance of parents and educators working in common cause. They chose to call their group the Texas Association for the Gifted and Talented.

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(from BATSON, page 3)

public school students have been identified as gifted and talented, school districts are not compensated for providing for the special needs of three percent of the GT students. State law requires school districts to implement the state plan for gifted education yet funding is limited.

State funding for education of Texas gifted and talented students has not kept pace with the needs of these students. In the 1992-93 school year, 248,000 public school students in Texas were identified as gifted and talented. That number increased in 2000-2001 to about 343,000, yielding a 37 percent increase in nine years. In comparison, in 1992-93, there were 3,538,000 students in Texas public schools. That number rose to 4,060,000 in 2000-2001. This is a 15-percent increase from 1992-93 to 2000-01. Over the past nine years, the gifted student population has grown two-and-half times as fast as the total number of students in Texas public schools.

In the 1992-93 school year, $51 million were expended to school districts under the gifted and talented allotment. This figure rose to $61.8 million in the 1999-00 year for an increase of 21 percent. In 1992-93, total instructional expenditures for the state of Texas were $8.679 billion. In 1999-00, that number rose to $13.097 billion, an increase of 51 percent. Therefore, funding for total instructional expenditures has increased more than twice as much as funding under the gifted and talented allotment even when the number of gifted students grew by 37%. In Texas, we have not directed our resources to one of the fastest growing segments in the student population.

TAGT believes that the State of Texas must address the discrepancy in funding between the growth in the gifted and talented population and the decline in funding for their education. With a 37% growth in the GT population and only a 21% growth in funding, Texas schools face a loss in state funding for their gifted programs.

Part of the problem in funding is the fact that the gifted and talented allotment is capped. With eight percent of the state's public education students identified as gifted and talented and the funding cap set at five percent, TAGT analysis reveals lack of funding for three percent of Texas gifted and talented students.

A look over time shows that fewer GT students have access to the gifted and talented allotment. In 1992-93, 248,000 public school students were identified as gifted and talented. However, the five percent cap in the Education Code allowed school districts to receive funds for 155,000 gifted students. In 1992-93, the gifted and talented allotment served 62 percent of all Texas gifted students. In 2000-01, 343,000 public school students were identified as gifted and talented. With the five percent cap, school districts received funds for 183,000 gifted students. In 2000-01, the gifted and talented weight provided funding for 53 percent of Texas gifted students. School districts are not able to keep up with the growth in this special population and the allotment is reaching fewer students each year.

Ways must be explored in which funding for gifted and talented programs can keep pace with the growth of the Texas gifted and talented student population. TAGT is interested in seeking alternative funding mechanisms that would follow the state law requiring school districts to identify and serve gifted and talented students. Such action is not only our responsibility under the Education Code, but is also in the best interest of Texas gifted and talented youth.

Keep the compass focused and funded.

(from WALKER & SEYMOUR, page 5)

personalities, interests and temperaments as well as intellectual abilities." In her opinion, clusters that include less than eight students might not offer enough opportunities "to develop peer relations."

When creating a cluster grouped environment, the following suggestions should be considered in order to minimize or eliminate the previously mentioned disadvantages.

RECOMMENDATIONS

ADMINISTRATOR

- Ensure that classes without gifted learners include several high ability students to avoid a lack of representation of these learners in nonclustered classrooms. This is especially important if more than 5-10% of the grade level is clustered (Winebrenner, Devlin, 1996).
- Rotate the teacher assigned to the cluster group and other grade level students so all learners have an opportunity to be in the cluster group (Winebrenner, Devlin, 1993). This will alleviate the perception that only those students in the cluster group are receiving higher order instruction and downplay the "elitist" element.
- Consider the formation of more than one cluster in schools where large numbers of gifted learners are identified in a grade level (Winebrenner, Devlin, 1993).
- Rotate the gifted students in the groups, if more than one cluster group is formed, to minimize any negative "familiarity" issues.
- Always group profoundly gifted students together (Winebrenner, Devlin, 1993)
- Supervise the cluster teacher to maintain the integrity of the program and ensure that differentiation occurs (Winebrenner, Devlin, 1996).
- Facilitate regular meetings of cluster teachers so that they can share ideas and problem solve together (Winebrenner, Devlin, 1993).
- Provide time for enrichment specialists to assist cluster teachers (Winebrenner, Devlin, 1993).
- Provide and encourage ongoing staff development trainings in the area of gifted education so that as many staff members as possible are ready to take on the responsibilities of the clustered group. They can offer to those students not in the cluster group appropriate gifted teaching strategies designed for their learning needs (Winebrenner, Devlin, 1996).

TEACHER

- Avoid placing students with significant learning disabilities in the cluster group of gifted to keep the number of preparations to a minimum.
- Use a variety of methods to accumulate learning information on the students when creating the cluster of gifted students. Keep in mind that both standardized achievement and aptitude tests provide only a small insight into each student. Reliance on performance activities and observations made by teachers trained in gifted education are of great value (Winebrenner, Devlin, 1993).
- Consistently compact and differentiate curriculum so gifted students can benefit from the clustered group arrangement (Winebrenner, Devlin, 1996).
- Hold parent meetings to inform them of the rationale, purpose and expectations of students in the clustered classroom. Relate the background training and experience of the cluster teacher and outline sample differentiations that the parents could expect to see.

PARENTS

- Confirm that the teacher assigned to the clustered class has the appropriate background training in gifted education. Coursework should include nature and needs of gifted learners, social/emotional needs, and differentiation of curriculum.
- Review students' assignments to establish that they reflect an enhanced (enriched and/or accelerated) curriculum and not just "more work."

Cluster grouping is seen as a practical and effective instructional practice for use with gifted learners. Upon review of the literature on cluster grouping and an examination of responses from individuals who have worked with this type of arrangement, it appears that this particular grouping strategy warrants serious consideration from those in search of ways to meet the needs of all students in the classroom. As one principal concluded, "The need for providing continued learning and continued growth for students is as important as providing bread and water." This is true for all students, including gifted learners. Employing cluster grouping is an efficient practice that facilitates the delivery of appropriately challenging curriculum for all learners.

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Program Options for the Elementary Level

—Within Daily Schedule of Classes
- Special Schools
- Pre-AP Classes
- Accelerated Courses
- Advanced G/T Classes
- Daily Classes/Pullout Classes
- Cross-Grade/Compacted Instruction
- Unique/High Interest Classes
- Enrichment Programs
- Leadership Programs
- Career Exploration
- Advanced Technology
- Fine Arts/Foreign Language
- Interdisciplinary Classes
- Gifted Cluster Groups/Flexible Grouping

—Special Offerings Outside Daily Schedule of Classes:
- Mentorships
- Summer Programs
- Parent Programs
- Pre-Duke MAP Program
- Academic Competitions (Odyssey of the Mind, Texas Future Problem Solvers, Science Fair, Invention Convention

(Crenshaw, 1995)

Table 1

(from CRENSHAW & MURPHY, page 7)

- provide for acceleration and enrichment;
- include authentic activities, real-world problem-solving, and critical thinking at all grade levels;
- establish and maintain student expectations for achievement while nurturing and helping students successfully meet standards;
- provide student options (Crenshaw, 2000).

Professional development and staffing procedures must:

- continuously cultivate staff members who encourage, promote, nurture talent/talent discovery/talent development;
- recognize the importance of initial, as well as continuous, professional development;
- provide opportunities for staff to attend workshops;

Classroom Instructional Strategies/Activities for the Elementary Level

- Junior Great Books
- New Jersey Writing Project
- Strategic Reasoning
- HOTS Units
- Literature-Based Instruction
- Literature Circles
- Cluster Group Activities
- Independent Projects/Research
- Differentiated Curriculum
- Compacting/Contracting
- Multiple Intelligence Activities
- Individualized Instruction
- Unique/High Interest Units
- Extended Learning Beyond Classroom
- Student Choice Encouraged
- Physical Movement
- Simulations (i.e. Interact, or other such units)
- Resident Expert
- Knowledge/Use of Cognitive Learning Styles
- Cooperative Learning
- Global Education
- Creativity Development
- Classroom Inquiry

Table 2

prepare; collaborate; and to develop/expand program materials, programs, and student opportunities (Crenshaw, 2000).

The belief outlined in the research of Robinson & Olszewski-Kublilus (1996) that "all children deserve to love school and to have the opportunity to make the best of their possibilities," echoes the responsibility of educators and administrators to implement programs that will make this statement a reality. There are numerous programming options that might be considered by educators and administrators as ways to better meet the needs of gifted, talented, and highly capable students. **Table 1** outlines some of the possible programming options appropriate at the elementary level, and **Table 2** outlines some of the classroom strategies that may be used by educators.

Research has shown that:

- students benefit when talent is nurtured,
- legislation has been created to provide gifted students with programs that meet their academic needs,
- state education agencies have developed guidelines to help districts establish gifted programs,
- administrators have encouraged the use of gifted strategies, and
- educators have implemented those strategies within their classroom.

Indeed, steps have been made in a positive direction so that the educational needs of gifted, talented, or high ability students are realized through challenging programs. However, "too often for our most gifted youngsters our schools are a crucible for boredom and lack of challenge" (Gallagher, 1991). If we expect our gifted students of today to be the directors of creative discovery tomorrow, we *must* provide programs that challenge them from the very beginning of their educational experience (Gallagher, 1991). By doing so, we will help our students be better prepared for their future as adult problem solvers, critical thinkers, and productive and contributing members of society.

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(from MEADOR & BRATCHER, page 9)

isolated from gifted peers. It is also the role of the principal to be mindful of the "make-up" of the class. Including a broad range of student learning needs must not compromise the climate of the classroom.

In a classroom where GT students are clustered, one would view a range of meaningful learning experiences built around the core curriculum. The administrator would see students working independently and in groups. Groupings of students are flexible depending upon the activity. Gifted students sometimes work with non-gifted students, but some groupings are planned for gifted students to work together. Planned grouping arrangements are important criteria for an effective classroom. Student interactions build on an individual's strengths in all areas; academic, social, and emotional. Gifted students, like their non-gifted peers, have a wide range of needs in each of these areas. The astute teacher artfully assigns students to flexible groups in order to challenge each learner with a variety of experiences. Students are not allowed to "monopolize" an expected role, whether they are functioning independently or as group learners.

Gifted learners sometimes function as leaders and sometimes function as followers. Both skills are important in developing cooperation and teamwork. The administrator must communicate that gifted students are not to be used exclusively as peer tutors. Often, teachers may assign gifted students to help their peers, or students may assume this role. The key is that this is not the primary role of gifted learners within the classroom.

Optimally, gifted students have the opportunity to delve deeply into topics embedded in the core curriculum. Students are not expected to terminate learning experiences once they can demonstrate mastery of the expected outcomes. Differentiated learning is different in quality not quantity. Gifted students may spend a little more time on differentiated assignments, but more is not necessarily better. They do not spend excessive amounts of time outside the school day completing differentiated assignments.

Gifted students explore topics with greater depth and complexity and demonstrate critical and creative thinking. It is evident to the administrator that learning experiences are intentionally planned to provide these opportunities. Assessments of student learning are also differentiated and an observer recognizes how students demonstrate additional depth and complexity of learning in constructed-response or performance assessment.

Suggestions for Parents

There are several ways parents can determine if their child is in a quality-clustering environment. The following are possible questions parents may ask teachers and/or school administrators.

- How many identified gifted students are in this class with my child?
- How will I know what learning experiences are differentiated for gifted learners?
- How will differentiated learning experiences be assessed and/or graded?
- How much time will my child have during a typical week in planned interaction with other gifted learners? with non-gifted learners?
- Will my child have additional homework as a result of the differentiated assignments?
- If I feel my child's needs are not being met, how will that be addressed in your classroom? In the school?

Clustering is not a panacea for gifted services and unfortunately, the specific components of successful clustering are not "one size that fits all." Yet clustering is a viable option for districts considering ways to maximize their services for gifted students. Through careful planning and open communication between teachers, administrators, and parents, districts can design their own effective cluster group services.

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(from SIMMS & CRENSHAW, page 13)

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GROUPING OPTIONS

(from ROGERS, page 1)

Table 1. Grouping Provisions and Their Impact on Gifted Students

PROVISION	ACADEMIC BENEFITS?	SOCIAL BENEFITS?	EMOTIONAL BENEFITS?	NEEDED SCHOOL STRUCTURE	STUDENT TRAITS NEEDED
Send-Out Groups Small group of grade level or cross-grade level students are sent from their respective classrooms to a resource room for enriched learning experiences	Yes	Yes	Yes	Part-time or full-time gifted specialist; resource room to hold classes; materials and resources budget; connection between regular curriculum and what is provided in send-out; regular teacher support of importance of for gifted children	CF: Gifted or talented, depending on what focus of send-out is PC: Motivated to learn, independent in action, persistent, comfortable with other gifted children LP: Likes independent study, discussion, small group work, learning in depth or breadth, challenge, creative production
Cluster Grouping Group of 5-8 top students at one grade level are placed in one classroom at that grade level with the remaining class being mixed in abilities	Yes	—	—	One trained (gifted specialist) teacher per grade level; sufficient students at each grade level to cluster them; commitment to divide time proportionately for differentiation; remaining teachers must support cluster teacher concept; need for careful explanation to all parents so that misconceptions about the cluster class don't arise	CF: One of top 5-8 gifted or talented students at grade level, depending on focus of cluster (gifted OR advanced readers OR advanced math) PC: Motivated to learn, independent in thought and action, sensitive to others, persistent, comfortable with age-mates, regardless of ability level LP: Likes small group work, self-instructional materials, projects, challenge I: Not interested in routine work in classroom, likes academics
Regrouping for Specific Instruction Students are regrouped at grade level by their level of performance in the curriculum area. After instruction, they return to their regular classrooms for instruction in other curriculum areas	Yes	Yes	Yes	Regrouped curriculum scheduled at same time across a grade level; advanced group teacher knows curriculum area well and likes working with advanced students; materials and resources budget; curriculum is differentiated by difficulty, coverage, expectations for performance, and pacing	CF: Talented or high performing in regrouped curriculum area PC: Motivated in curriculum area LP: Likes challenge, fast-paced learning I: Likes curriculum area
Within-Class Grouping Each teacher regroups children according to their performance levels in own class	Yes	Yes	—	Sufficient students (6-10) to form a small , high ability group within classroom; teacher commitment to differentiate in difficulty, coverage, expectations, and pacing; fairly well-behaved class of students generally	CF: Talented or high performing in grouped curriculum area PC: Independent in thought and action, persistent, focused LP: Likes small group work, self-instructional materials, projects, challenge
Like-Ability Cooperative Groups Students are sorted by their performance levels into 3-4 member groups to work jointly on a differentiated learning task	Yes	Yes	Yes	Sufficient students (3-4) in one classroom to form one group; teacher willingness to differentiate in difficulty, coverage, and expectations	CF: Talented or high performing in grouped curriculum area PC: Independent in thought and action, persistent, focused LP: Likes small group work, self-instructional materials, projects, challenge

CF - Cognitive Functioning Levels
PC - Personal Characteristics
LP - Learning Preferences
I - Interests

GROUPING OPTIONS

PROVISION	ACADEMIC BENEFITS?	SOCIAL BENEFITS?	EMOTIONAL BENEFITS?	NEEDED SCHOOL STRUCTURE	STUDENT TRAITS NEEDED
Cross-Grade Grouping Students work in curriculum area with others at same performance level, regardless of age or grade level	Yes	—	—	Curriculum area scheduled at same time across all grade levels in the school; teachers comfortable with multi-age groups; curriculum is "articulated" carefully; teachers can work with all abilities at a performance level	CF: High performing at appropriate cross-graded level of curriculum area PC: Persistent, comfortable with children of all ages and abilities, independent, motivated to learn LP: Likes challenge, learning in depth and breadth I: Likes curriculum area, studies on own outside of school in curriculum area
Peer Tutoring Dyads Pairs of high ability students, are provided with cooperative task to work on together	Yes	Yes	—	Teacher comfort with allowing students to learn from each other; teacher knowledge of actual skill and knowledge levels of individual students in class; teacher comfort with allowing gifted students to work together	CF: High performing in grouped curriculum area PC: Independent in thought and action, persistent, focused LP: Likes peer learning, self-instructional materials, projects, challenge, learning in depth and breadth, discussion I: Likes curriculum area, studies on own outside of school in curriculum area
Mixed-Ability Cooperative Groups High, medium, and low performing students are grouped in teams and provided with cooperative tasks to work on together	No	Yes	Yes	Teacher comfort with allowing students to learn from each other; fairly well-behaved class of students generally	CF: None needed PC: Focused, sociability, motivated to learn LP: Likes peer learning, projects, discussion I: Likes curriculum area
School for the Gifted Gifted students are admitted to a special school focused on developing academic or artistic gifts	Yes	Yes	Yes	School (private or public) located in vicinity; teachers and administrators trained in gifted education; adequate materials and resources to differentiate for difficulty, coverage, and pacing	CF: Highly gifted or talented intellectually, academically, or artistically, depending upon focus of the school PC: Persistent, focused, motivated to learn LP: Likes challenge, learning in depth and breadth, deals well with competitive situations, thrives with fast pacing, craves new knowledge and skills, thrives when with others like self
Full-Time Gifted Program/School-Within-A School Gifted students are placed with others like themselves for all academic learning during the school day. This often takes the form of a self-contained classroom	Yes	Yes	Yes	Sufficient gifted or talented students to comprise one classroom per grade level; one teacher at each grade level trained in gifted education; teacher comfort with allowing gifted students to work together	CF: Highly gifted or talented intellectually or academically PC: Motivated to learn, persistent, focused LP: Likes challenge, learning in depth and breadth, deals well in competitive situations, thrives with fast pacing, craves new knowledge and skills, thrives when with others like self

GROUPING OPTIONS

Based on what the research has had to say about the forms of grouping listed in the table, the following guidelines concerning which grouping options to choose for a gifted child may be helpful. Although these guidelines are listed in general order of importance, your educational setting as well as the kinds of gifted children you have in your setting may dictate a different order for your grouping strategy selection.

- **Grouping is important.** Educators must find ways to allow gifted students to spend most of their learning time in the academic core areas with others of like abilities, performance levels, and interests. Although self-contained grouping, such as a special school or a full-time gifted program, may not a possibility, you should be able to expect a third to a half year's additional achievement per year as a minimum standard of what you could expect bright children to accomplish no matter what their management or grouping arrangement.
- **Cluster Grouping is a viable option.** Both cluster grouping and regrouped classes for academic core areas may be suitable substitutes for full-time placement in a gifted program or school. Care must be taken to establish up front what type of cluster or regrouping is being created. A cluster that includes intellectually able students regardless of performance levels will differentiate curriculum very differently than a cluster grouped by advanced reading or math performance. For regrouped classes, there must be some assurance that all students in the class are there because of their high performance in that subject area, rather than to fill the *n*th seat or to lower the number of students to be regrouped in a lower performing class.
- **Curriculum matters.** No matter which grouping arrangement is selected for academic core areas, attention must be focused on what will be taught and to what level of depth and complexity. Ultimately the curriculum is more important –how its is compacted, accelerated and enriched – than how children are grouped.
- **Send-out programs are not enough.** These programs must be used with care. The focus of the send-out is critical. Good achievement gains are found for send-outs that extend the general classroom curriculum in *specific* curriculum areas. Because these programs rarely meet every day, they cannot be considered sufficient differentiation. Gifted students must have their academic needs addressed *every day* in almost every academic area. A send-out experience once or twice a week will not, by itself, suffice.
- **Within-class grouping is not enough.** When no other forms of grouping are possible in a school setting, within-class grouping, like-ability cooperative groups, and like-ability peer dyads should be used. They can be beneficial for gifted children if the curriculum tasks designed for group work have been appropriately differentiated. All too often, however, the teachers are not trained nor do they have time to do this well on a daily basis. Hence, the gifted may not be stretched as fully as needed in such an arrangement.
- **Enrichment is usually inadequate.** When all teachers are "expected" to enrich in their respective classrooms, most likely the level of enrichment will not be deep or complex or fast-paced enough for gifted learners, nor will it take place with much regularity. There is just too much else for which the classroom teacher is responsible for this responsibility to have top priority.
- **Dyads should be used sparingly, unless they are like-ability dyads.** No research conducted on mixed-ability grouping for the sharing of common tasks has supported such a strategy for improving the academic achievement of gifted learners. In most of these studies, however, the shared tasks have been convergent, repetitive, or mastery learning tasks, often already mastered or learned by the gifted group member. Attempts at using mixed-ability groups when the tasks are open-ended or problem-based with automatic individual accountability must be studied in the next round of research on these forms of grouping.
- **Be cautious in using whole-class instruction.** Whole-class instruction should be used rarely, if at all, with gifted or talented children. The pacing and instruction will not be suitable for effective retention or what is learned. If whole-class instruction were offered as the mode of delivery for an out-of-level (i.e., cross-graded) class, it might be used successfully with gifted or talented children.

At the beginning of this article, I posed a scenario and asked you to plan how you would provide for the special gifts and talents of your students. Now let's see what might be steps you could take that would help determine the best or most practical grouping practice(s) to use.

Step 1: First, you must ascertain the actual levels of achievement of the students. It will be necessary to assess the 2-3 highest performing children in each classroom at grade level on their current mastery levels in reading, language arts, science and mathematics. If these students do better than 85-90% on grade level measures, then out-of-level assessments should be used.

Step 2: Next, the teacher should determine if there are a sufficient number of students to form a *cluster* in one or more academic areas. If a group of 5-8 children who are considerably ahead of the other children in all of these areas, then the group could be regrouped to form a *cluster* in one classroom, so that they can learn together in all academic areas and differentiated by that single teacher.

Step 3: If the children assessed are gifted in different areas, a single cluster might not be the best strategy. If a group of 3-4 children are found who are ahead in math, and a different 3-4 found in reading and so forth, then it would be possible to *regroup* these children for each specific subject by assigning them to one grade-level teacher who will be responsible for differentiating that subject as a *within-class* group.

Step 4: If the group of gifted children is ahead in one subject only, then a *send-out* group run by a gifted specialist might be used to differentiate that curriculum area on a *daily* basis.

Step 5: If school administration will not support differentiation through grouping, then it will be necessary to *group* or *pair* the 2-3 bright students in each class and let them proceed through self-instructional materials on their own.

[Note: For a more extensive discussion of the ideas presented here, please consult my book, *The re-forming of gifted education: Matching the program to the child.* (November, 2001), Scottsdale, AZ: Great Potential Press

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Book Review

Karen Rogers' new book, *Re-forming Gifted Education: Matching the Program to the Child* (Great Potential Press, 2001), is an invaluable source for parents and educators alike. Althought it is addressed primarily to parents, educators will also find this to be a very useful volume, with its wealth of information backed by significant research.

As any parent of a gifted child knows, schools do not always meet the needs of high ability students. This lack may be innocent and unintended, or deliberate and reflecting a misguided philosophy of supposed equality. Whatever the cause, parents need information to back up their demands for an appropriate education for their child, and Dr. Rogers has done an admirable job with this book. Based on the latest research and her own personal experience in developing and monitoring individual education plans for more than 150 high ability students, this book gives parents (and interested teachers) the ammunition they need to address the problems that arise in educating the gifted.

Topics addressed include background information on what it means to be gifted and talented, different types of acceleration, program provisions (grouping), and the need for developing an educational plan for the gifted child. One of the most exciting and useful sections is the appendix of inventories and plans.

The Parent Inventory for Finding Potential has fifty-one descriptions of behaviors/characteristics for parents to check frequency of occurence with their child. A scoring graph enables parents to see the relative strengths of their child's abilities. The Teacher Inventory of Learning Strengths helps teachers graph the academic, personal, and social strengths of the student. For students, there are content-based inventories of interest and attitudes that provide valuable and often overlooked information for a student profile. The How Do You Like to Learn inventory provides information that when graphed, lists and ranks learning preferences including discussion, projects, self-instruction, lecture, and independent study among others.

While this volume will undoubtedly become one of the standard texts for gifted specialists, it is a real necessity for parents of gifted children, educators, and all other advocates for quality education of high ability learners.

—*Michael Cannon*

What the Research Says About Grouping Gifted Students

Susan K. Johnsen
Majka Mitchell

Rogers (1991) and Kulik and Kulik (1992) have defined a variety of grouping arrangements in their research syntheses.

- **Full-time gifted programs** are those in which students are grouped together throughout the day. These classes may occur on a campus with other more heterogeneous classes or may be isolated in a separate school.
- **Pull-out gifted programs** are those in which students are grouped together for only a portion of a day or even a week.
- **Cluster grouping** occurs when five to eight gifted learners are placed in a heterogeneous classroom with a teacher who is trained in gifted education.
- **Cooperative learning** are, for the most part, mixed ability groups that are formed to achieve some objective.
- **Enrichment groups** receive varied educational experiences that are not included in the regular classroom but are available to gifted students who complete the activities instead of or in addition to the regular classroom. Enrichment may occur within or outside the regular classroom setting.
- **Homogeneous groups** may be formed based on ability and/or achievement levels. These homogeneous groups may be within the same grade, across grade levels, or within a heterogeneous classroom (i.e., cluster groups).
- **Flexible groups** occur when students are regrouped for specific instruction and are based upon assessed needs.
- **Accelerated groups** are for gifted students with high academic aptitude that receive instruction allowing them to proceed more rapidly through their schooling. Forms of acceleration include nongraded classrooms, curriculum compacting, grade telescoping, subject acceleration, advanced placement, and early admission to college. Since a variety of choices are possible, it is important for the educator to know which grouping arrangements are the most effective.

Articles published in *Gifted Child Quarterly, Journal for the Education of the Gifted,* and *Roeper Review* during the past ten years were examined. To be included, the article needed to focus on the effects of various grouping practices. Studies were excluded if they were outside the United States or were opinions. Using this selection process, 21 articles were reviewed.

The majority (57%) of these articles focused on grouping arrangements at the elementary level, with three at the middle school and two at the high school levels. Grouping arrangements included ability (25%), pullout (20%), cooperative learning (20%), cluster (15%), enrichment (15%), acceleration (10%), and flexible (10%). In describing various grouping practices and determining their effects, researchers used observations (30%), pre and post tests (30%), surveys (25%), and interviews (30%). (These totals may exceed 100% because some articles addressed more than one grouping arrangement or used more than one method for collecting data.)

Four of the studies described grouping methods that were currently used at the elementary and middle school levels. As an elementary teacher, Hughes (1999) described her approach to serving gifted students in her classroom. She used differentiated instruction, student choice, flexible groupings, and mixed enrichment with acceleration so that students did not have to do the same thing. Using observations in ten middle school classrooms, Coleman and Gallagher (1995) found grouping in language arts and math, gifted students who were placed on the same team, cooperative learning, and pullout classes.

Cooperative learning was differentiated in a variety of ways: open-ended and more complex tasks, pacing, choice, interests, and creative solutions. Reis, Gentry, and Maxfield (1998) reported ways that elementary enrichment clusters differentiated for gifted students by providing challenging content, using authentic "tools," using advanced resources and reference materials, using advanced thinking and problem-solving, integrating creative thinking and historical perspectives, and developing presentations or performances. Unfortunately, Westberg, Archambault, Jr., Dobyns, and Salvin reported that 84% of the activities in third and fourth grade classrooms were essentially the same for all students.

For the most part, attitude surveys show that educators, particularly gifted and talented teachers, believe that ability grouping, enrichment, and acceleration benefit academically able and gifted students (Dorsel & Wages, 1993; Hughes, 1999; Gallagher, Coleman, & Nelson, 1995; Jones & Southern, 1992; Moon, Feldhusen, & Dillon). Teachers who used cluster grouping were more positive towards this practice than those who did not (Hoover, Sayler, & Feldhusen, 1993). In general, middle school educators did not believe that gifted students benefit from being grouped together and believed that such grouping might even cause social difficulty (Gallagher, Coleman, & Nelson, 1995). These educators preferred mixed ability cooperative learning and believed that this type of grouping provided challenge and was an effective strategy for educating all students. However, Ramsay and Richards (1997) reported that middle school students were more positive toward classes that used cooperative learning infrequently.

Researchers examined acceleration (Mills, Ablard, & Lynch, 1992) and compared the effects of pullout programs with regular classrooms and enrichment (Vaughn, Feldhusen, & Asher, 1991), homogeneous with heterogeneous settings (Roberts, Ingram, & Harris,1992), homogeneous and heterogeneous cooperative learning (Melser, 1999), and all grouping patterns with one another (Cornell, Delcourt, Goldberg, & Bland, 1992). Mills, Ablard and Lynch (1992) found that secondary students who participated in a three-week advanced precalculus course made A's in subsequent courses. Students who were grouped homogeneously were found to improve in their academic performance, in their thinking skills, and in their positive attitudes toward school. Sheppard and Kanevsky (1999) also found that gifted students who were grouped together made more extensive product descriptions than heterogeneously grouped students. Cornell et al. (1992) found that special school and separate class students tended to score the highest on five achievement measures, while within class grouped students tended to score the lowest. When flexible cluster grouping occurred throughout a total school, all elementary students' achievement improved when compared with a control school (Gentry & Owen, 1999). Similarly, Melser (1999) found that both homogeneously and heterogeneously cooperative learning groups made reading achievement gains.

Dorsel and Wages (1993) did report that in a residential program, gifted students reported a decline in their confidence level. Melser (1999) also found that there was a decrease in self-esteem when gifted students worked with one another while gifted students' self-esteem rose when they worked in heterogeneous groups. However, Kulik and Kulik (1992) did not find that grouping influenced students' self-esteem.

Shore and Delcourt (1996) reviewed 40 recommended practices for gifted students and reported that only five received strong empirical support. Two of these related to grouping- ability grouping and acceleration. In a meta-analysis of research that has been conducted since 1916, Kulik and Kulik (1992) reported that academic gains were directly related to the degree of curricular adjustment. In other words, the more that the curriculum matched the needs of the student, the more likely that the student would make achievement gains. They conclude, "We believe that American schools would be harmed by the elimination of programs that tailor instruction to the aptitude, achievement, and interests of groups with special educational needs" (p. 76).

Coleman, M. R., & Gallagher, J. J. (1995). The successful blending of gifted education with middle schools and cooperative learning: Two studies. *Journal for the Education of the Gifted, 18,* 362-384. The authors selected ten middle schools where cooperative learning was blended with "top quality education" for gifted students (p. 367). For each site, two to three researchers visited the programs for two days and interviewed key people, facilitated focus groups with teachers and students, observed in classrooms, and reviewed documents. In all five schools, language arts and math were taught in classes grouped by ability and/or performance; three schools placed gifted students on the same team; and one school pulled out gifted students from their regular classes. Cooperative learning was differentiated in a variety of ways including open-ended tasks, task complexity, self-pacing, homogeneity of students, difficulty level of materials, choice of groups, student interests, and creative solutions. The authors concluded that in these schools, leaders and teachers recognized that high standards for all children did not mean the same thing for all students.

Cornell, D. G., Delcourt, M. A. B., Goldberg, M. D., & Bland, L. C. (1992). Characteristics of elementary students entering gifted programs: The learning outcomes project at the university of Virginia. *Journal for the Education of the Gifted, 15,* 309-331. This study examined the effects on achievement of 1,114 gifted and talented second and third grade students who were placed in these program delivery systems: special school, separate class, pull- out class, within class, no-program. After controlling for effects of student grade level and minority status, the authors found that the Special School and Separate Class students tended to score the highest on five achievement measures, and the Within Class students tended to score the lowest.

Dorsel, T. N., & Wages, C. (1993). Gifted, residential education: Outcomes are largely favorable, but there are some cautions. *Roeper Review, 15,* 239-242. This article investigated the beliefs, attitudes, and feelings of 85 parents and 67 students on a variety of issues related to attending the South Carolina Governor's School for Science and Mathematics (GSSM), a residential high school for the intellectually/academically gifted. Results indicated that both parents and students reported positive educational consequences for attending a high school such as the GSSM. A third questionnaire showed a significant decline in confidence level, but the authors noted that the positive ratings were still high. The authors concluded that while the GSSM program has proved successful in its first four years of operation, the research regarding the charter class may not be representative of future classes that have the benefit of coming into an already functioning structure.

Gallagher, J., Coleman, M.R., & Nelson, S. (1995). Perceptions of educational reform by educators representing middle schools, cooperative learning and gifted education. ***Gifted Child Quarterly, 39,*** **66-76.** In this study the responses of 175 gifted educators and 147 middle school educators were analyzed using a survey that investigated their perceptions of educational reform, particularly cooperative learning. The results indicated that the two groups had widely varied opinions in regard to gifted students and their educational needs. The issue of ability grouping of gifted students provided the widest discrepancy with middle school educators expressing the idea that gifted students would not benefit from this setting while gifted educators felt that grouping was an important means to help meet the unique needs of the gifted population. The disagreement between the two groups on the three subsets, middle school/gifted, cooperative learning/gifted, and open ended comments, all underscore the importance of further dialogue between classroom teachers and teachers of the gifted.

Gentry, M., & Owen, S.V. (1999). An investigation of the effects of total school flexible cluster grouping on identification, achievement, and classroom practices. ***Gifted Child Quarterly, 43,*** **224-243.** Gentry and Owen reported the results from a four-year, causal comparative study investigating the effects of elementary school cluster grouping. Data were collected on 197 students in the treatment school and 137 students in the comparison school, all of whom had attended the respective schools from grades 2-5. In this longitudinal study, the researchers used math and reading standardized achievement measures (NCE scores) that were available at the sites and semi-structured interviews. The results indicated that cluster grouping, combined with other variables such as appropriate differentiated instruction, flexibility, staff development, and high expectations may have a positive impact on all students in the school. The teachers indicated when the highest achievers were grouped together in separate settings; the other students had an increased opportunity to display their own strengths and abilities. The authors realize the limitations of a causal comparative study but remind the reader that this study was not designed to isolate one variable but rather to understand the complex issues regarding grouping in a whole school setting.

Hoover, S.M., Sayler, M, & Feldhusen, J.F. (1993). Cluster grouping of students at the elementary level. ***Roeper Review, 16,*** **13-15.** Teachers who employed clustering techniques were surveyed regarding the degree of implementation of cluster grouping, different activities used, and perceived effectiveness of cluster grouping. The sample of teachers was drawn from twenty-two districts in Indiana with the majority (79%) teaching grades 1-4. Results from the survey indicated that cluster grouping was a relatively new concept to this sample of teachers and was being used mainly in the primary grades. The researchers found that those teachers who employed clustering strategies in their classrooms were more likely to indicate positive responses to questions concerning clustering practices than those who did not use clustering as a means to provide appropriate instruction to students with higher level skills. While the results indicated that cluster teachers perceived parents as supporting clustering grouping, they generally perceived non-cluster teachers as neutral in regard to their attitudes to cluster group. In conclusion the authors suggest that while clustering appears to be academically and socially beneficial, is positively perceived by cluster teachers, and allows for skill differentiation, future researchers need to conduct more rigorous research using experimental or quasi-experimental designs comparing clustering with other methods.

Hughes, L. (1999). Action research and practical inquiry: How can I meet the needs of the high-ability student within my regular education classroom? ***Journal for the Education of the Gifted, 22,*** **282-297.** Using data collected from student questionnaires, parent interviews, classroom observations, and teacher-student portfolio conferences, this fourth grade teacher-identified activities for her high-ability students: differentiated instruction, student choice, flexible groupings, and mixed enrichment with acceleration. The teacher reported that using these strategies, students were not doing the same thing, were not "stuck" in the same group all year, were able to make choices that matched their interests and abilities, enjoyed enrichment and acceleration, and reported a positive classroom atmosphere.

Jones, E. D., & Southern, W.T. (1992). Programming, grouping, and acceleration in rural school districts: A survey of attitudes and practices. ***Gifted Child Quarterly, 36,*** **112-117.** The researchers gathered information from rural and urban school districts regarding ability grouping, special programming for gifted and talented students, and perceptions of how ability grouping affects academic and social adjustment. The study found that while both rural and urban districts implemented a variety of program options for gifted education, the rural districts did not have the ability to be as extensive in their use of varied program choices. Both groups indicated a belief that ability grouping and acceleration were beneficial for the more academically able and had greater benefits to the gifted population than to other groups of students.

GROUPING OPTIONS

Kulik, J.A., & Kulik, C.C. (1992). Meta-analytic findings on grouping programs. ***Gifted Child Quarterly, 36*****,73-77.** The researchers used a meta-analysis to reexamine findings on grouping from research that has been conducted and reported since 1916. The authors found that academic and other effects reported in the literature appear to be a function of the program type. Academic gains seem to be a directly influenced by degree of curricular adjustment. They go on to note that the student self-esteem in relation to grouping is not influenced in either direction, contrary to the research findings of other researchers. Meeting the needs of gifted students through grouping is an appropriate and necessary function of the school system.

Melser, N.A. (1999). Gifted students and cooperative learning: A study of grouping strategies. ***Roeper Review, 21*****, 315.** The researcher investigated the effects on reading achievement and self-esteem of homogeneously vs. heterogeneously grouped fourth grade students. The researcher used the Gates-MacGinitie Reading Test and the Coopersmith Self-Esteem Inventory. Both groups improved in reading achievement, but the heterogeneously grouped students showed gains in self-esteem while the homogeneously grouped students showed decreases in self-esteem. Cooperative learning has a place when used appropriately and can be a useful tool to help teach gifted children.

Mills, C. J., Ablard, K. E., & Lynch, S. J. (1992). Academically talented students' preparation for advanced-level coursework after an individually-paced precalculus class. ***Journal for the Education of the Gifted, 16*****, 3-15.** A sample of 239 academically talented students in eighth, ninth, and twelfth grades who participated in a three-week individualized, flexibly paced precalculus course completed a questionnaire. Results indicated that the majority of students found the summer course more challenging than courses in their home school, the individually-paced summer course prepared them as well as prerequisite courses, and they made A's in subsequent courses.

Moon, S. M., Feldhusen, J. F., & Dillon, D. R. (1994). Long-term effects of an enrichment program based on the Purdue Three-Stage Model. ***Gifted Child Quarterly, 38*****, 38-48.** This retrospective study investigated the effects of an elementary enrichment program on 23 students participating in a program using the Purdue Three-Step Model. School data, parent surveys, and student surveys were analyzed. Results indicated that this program had a positive effect on students and was successful in meeting program goals. Students and parents viewed the benefits of grouping gifted students for differentiated instruction outweighed the negative factors.

Ramsay, S. G., & Richards, H. C. (1997). Cooperative learning environments: Effects on academic attitudes of gifted students. ***Gifted Child Quarterly, 41*****, 160-168.** This research study examined the attitudes of gifted and nongifted children toward cooperative learning. Participants were 851 sixth, seventh, and eighth graders in four middle schools in Virginia and North Carolina. Teachers responded to a survey about their uses of cooperative learning. To corroborate their responses, they were also interviewed and observed in their classrooms. To assess attitude, the Estes Attitude Scales and Cooperative Learning Attitude Survey were administered to the participants. The authors reported that nonidentified children were more positive toward cooperative learning than their gifted peers, and that boys were more positive than girls. Gifted children were more positive in classes where cooperative learning was used less frequently.

Reis, S. M., Gentry, M., & Maxfield, L. R. (1998). The application of enrichment clusters to teachers' classroom practices. ***Journal for the Education of the Gifted, 21*****, 310-334.** This study investigated the effects of providing enrichment clusters to the entire population of two urban elementary schools. Enrichment clusters provide a regularly scheduled time for a nongraded group of students to complete a product and work with facilitators who have expertise in a shared interest area. The clusters met together for 10 weeks in one school and 12 weeks in the other school. Each meeting lasted 75 minutes and was facilitated by a teacher, community member or parent. Data were collected through written descriptions of observations, interviews, evaluations, and questionnaires. Challenging content was integrated into 95% of the clusters using these strategies: developing products or services, using specific authentic methodologies, using advanced vocabulary, using authentic "tools," using advanced resources and reference materials, using advanced thinking and problem-solving, integrating creative thinking and historical perspectives, and developing presentations or performances. Approximately 60% of the teachers who facilitated clusters transferred some of the strategies used in clusters into their regular classroom practices.

Roberts, C., Ingram, C., & Harris, C. (1992). The effects of special versus regular classroom programming on higher cognitive processes of intermediate elementary aged gifted and average ability students. ***Journal for the Education of the Gifted, 15*****, 332-343.** This study compared the effects of pull-out and school-wide enrichment programs on gifted and talented students' higher level cognitive processing skills. Pull-out programming appeared to produce significantly higher levels of thought processes as measured by the Ross Test of Higher Cognitive Processes. The authors concluded that contact with other gifted students and the curriculum might have contributed to the difference. Special programming has a greater effect than regular school programming.

Rogers, K. B. (1993). Grouping the gifted and talented: Questions and answers. *Roeper Review, 16*, 8-12. This article considers five major questions related to grouping and bases answers on 13 research syntheses conducted since the early 1980s. Topics of these questions include grouping options, academic effects, social effects, concerns of homogeneous grouping, and problems related to heterogeneous grouping. The author concludes, from the previous research, that some form of grouping and differentiated instruction is necessary and appropriate for gifted students.

Sheppard, S., & Kanevsky, L.S. (1999). Nurturing gifted students' metacognitive awareness: Effects of training in homogeneous and heterogeneous classes. *Roeper Review, 21*, 266-272. This article describes the effects of metacognitive awareness training on six gifted students, three in a homogeneous gifted class and three in a heterogeneous classroom. Students were asked to develop and discuss a machine analogy for their mind while problem solving. Drawings, written products and interviews were analyzed. The researchers found that the homogeneously grouped students were extensive in their descriptions and were better able to use each other's ideas to expand their own. The heterogeneously grouped students were more likely to conform to ideas rather than expand them and were not as spontaneous in response.

Shore, B. M., & Delcourt, M. A. B. (1996). Effective curricular andprogram practices in gifted education and the interface with general education. *Journal for the Education of the Gifted, 20*, 138-154. The authors selected 40 generally recommended practices that fell under the heading of program practices from their 1991 book *Recommended Practices in Gifted Education: A Critical Analysis.* Five practices, which were uniquely appropriate to gifted education, received strong empirical support: acceleration, career education—especially for girls, ability grouping, program arrangements, and high-level curricular materials. Twelve other practices that received strong support were viewed as effective with gifted students and other students. They conclude that solid evidence exists to support a core of practices that appears to enhance the affective and cognitive growth of very able children and another group of practices that they can share with general education.

Vaughn, V.L., Feldhusen, J.F., & Asher, J.W. (1991). Meta-analyses and review of research on pull-out programs in gifted education. *Gifted Child Quarterly, 35*, 92-98. The authors focused on the effectiveness of pull-out programs in gifted education. Small to medium positive effects were found regarding academic achievement and critical and creative thinking. They suggest that pull-out programs be combined with grouping in the regular classroom to better serve the needs of gifted students during the normal school day.

Westberg, K.L., & Archambault, F.X. (1997). A multi-site case study of successful classroom practices for high ability students. *Gifted Child Quarterly, 41*, 42-51. Ten elementary schools and classrooms were studied in order to describe the various practices used to meet the needs of high ability students. Data were gathered in the form of full case studies with the researcher observing in classrooms and conducting open ended interviews. The authors discovered a number of successful practices being implemented at each of the sites. At many of the sites the teachers had a combination of advanced training and knowledge. Most of the teachers were willing to make changes in their classroom practices if it was a benefit to the students. Teachers were able to employ a variety of strategies for differentiating instruction for gifted students. At some sites there was a strong leadership role from the administration. In general these sites displayed a supportive attitude towards the special needs of the gifted and talented population. The authors conclude that teachers who are effective differentiate for the abilities within their classrooms.

Westberg, K. L., Archambault, Jr., F. X., Dobyns, S. M., & Salvin, T. J. (1993). The classroom practices observation study. *Journal for the Education of the Gifted, 16*, 120-146. Using observations data from 46 third and fourth grade regular classrooms and interviews, the researchers found that little differentiation occurred in the instructional and curricular practices, grouping arrangements, and verbal interactions for gifted and talented students. They reported that 84% of the activities were the same for both gifted and talented and general education students. In addition, the gifted students spent the 79% of their time with the entire class or in heterogeneous groups.

**Note: The reader is referred to these excellent analyses of the grouping research:*

Kulik, C.-L. C., & Kulik, J. A. (1982). Effects of ability grouping on secondary school students: A meta-analysis of evaluation findings. *American Educational Research Journal, 19*, 415-428.

Kulik, J. A., & Kulik, C. -L. C. (1984). Effects of accelerated instruction on students. *Review of Educational Research, 54*, 409- 426.

GROUPING OPTIONS

Rogers, K. B. (1991). ***The relationship of grouping practices to the education of the gifted and talented learner.*** **Storrs, CT: The National Research Center on the Gifted and Talented.**

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- Support quality professional development for educators of gifted and talented students

Adopted by the TAGT Executive Board: 2.5.00

Correction

The following list of references was inadvertently omitted from the article, "A Model for Fulfillment" in the fall 2001 *Tempo*.

References

Goleman, D. (1998). *Working with emotional intelligence.* New York,: Bantam Books.

Renzulli, J. (1999). What is this thing called giftedness and how do we develop it? A twenty-five year perspective. *Journal for the Education of the Gifted.* 23(1), 3-50.

Renzulli, J.S., Reis, S.M., and Smith, L. (1981). *The revolving door identification model.* Mansfield, CT: Creative Learning Press.

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Virtues and Varieties of Grouping

Michael W. Cannon

Advocates of gifted education might sometimes be confused with revival missionaries as they preach a particular "gospel of giftedness." With their zeal and enthusiasm, they not only seek to convert unbelievers (the heathen who fear elitism and believe that all children are gifted), but also to convince heretics (those who support gifted education, but have different beliefs and practices).

While I don't intend to get into these religious wars here, I would like to examine one of the controversial practices, that of grouping, by using terminology most often found in discussions of ethics and morality, the idea of virtue.

In *A Small Treatise on the Great Virtues,* André Comte-Sponville defines virtue as "as force that has or can have an effect. . . a specific capacity. . . a distinctive excellence." There are many virtues recognized in one list or another, but I would like to use the idea in connection with the practice of grouping gifted students. If the virtue of some action depends on its distinctive excellence, then "virtuous grouping" would be an excellence in grouping, grouping that best and most efficiently separates the whole into meaningful parts.

> Grouping is a neutral tool-like a knife, it all depends on the use made of it.

In grouping identified gifted and talented students, how well it is done, how "virtuously," if you will, depends then on how efficiently it separates not just the physical bodies of the students, but the curriculum and products as well. It is relatively simple to place all the identified gifted students into a cluster, pull out, or special class. This is mere scheduling. The key, of course, is what goes on in the group.

As you look at a particular grouping option in practice, remember that to be virtuous, to be really excellent, some curriculum factors need to be considered.

- Is the content substantially different?
- Does the curriculum address the dimensions of depth and complexity?
- Are themes and generalizations organizing elements of instruction?
- Is the method of delivery adapted to the needs and abilities of gifted students?
- Are there expectations that students will create products and performances of outstanding quality?

There are many varieties of grouping options currently in practice. How you judge these varieties of grouping - cluster, pullout, whole class, cooperative groups - depends in part on your philosophical approach to the subject.

You may approach the question of grouping options in an absolute, hierarchial way. In other words, there is an ideal out there, some perfect way to group students, and all other options are closer or farther from this Platonic exemplar. On the other hand, you may, like Socrates' antagonists the Sophists, have a more situational approach. That is, each district, each campus, each classroom is a new situation and what works in one may not work in another.

The question of grouping, like most other messy situations in education, has no one solution. And while it may become a matter of belief and not reason, it is good to remember that divine revelation really plays no part in gifted education.

Comte-Sponville, A. (1996). *A small treatise on the great virtues.* New York: Henry Holt.

Nehama, A. (1998). *The art of living: Socratic reflections from Plato to Foucault.* Berkeley: U of California Press.

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Tempo

TEXAS ASSOCIATION FOR THE GIFTED AND TALENTED
Member, National Association for Gifted Children (NAGC)
Volume XXII Issue 2

Spring 2002

HUMANITIES AND GIFTED STUDENTS

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Concentric Circles of Knowledge

Sandra Kaplan
University of Southern California

The standard was visible clearly on the board: "Students will understand the ideas and events leading to the development of a democracy. The teacher asks the questions: "From a philosopher's point of view, how did Plato's concept of utopia, of the ideal society, parallel the Founding Fathers views of a democracy?" After the discussion, the teacher asked the students to define the tenets of democracy in relationship to Maslow's concept of self actualization. This vignette illustrates the means by which the humanities can both reinforce and extend the standards or core curriculum for gifted students.

It is commonly acknowledged by teachers that differentiation demands comprehension of standards-based content or subject matter that challenges the potential of gifted students and facilitates their abilities to exceed the standard. However, the means by which to attain this goal is not as easily met with congruent ideas by teachers. The concept of concentric circles of knowing has been introduced as a means of providing challenging content. Given the content from the standard, gifted students are provided with a design to probe the curriculum at varying levels of sophistication. Each circle in the concentric circle curriculum design requires students to revisit the standards-based content for a different purpose, thus providing various vantage points to investigate the meaning of the content.

The use of this concentric circle curriculum and

(see KAPLAN , page 20)

FROM THE PRESIDENT

James Collett

In the novel *Fallen Angels*, (1988), Richie Perry narrates his tour of duty during the Vietnam War. Within a few days of his arrival in-country, the young African-American endures several harrowing events. Crouching in a combat zone, he recalls a conversation from his second week of high school. The counselor asks Richie what he wants to do in life. "I'd like to be a philosopher, I had said. She had started laughing and apologizing at the same time. It was simply not the kind of thing, she explained, that she had expected." (p. 119).

While we can sympathize with the counselor's response, we might also consider the irony that lies in one's surprise that students might wish to become "lovers of wisdom," the meaning the ancient Greeks originally assigned "philosophy" (from *philos*, loving, and *sophos*, wise). Yet, when we consider the treatment of the humanities within the educational setting, we are more chagrined than amazed.

In Texas, we allocate science, mathematics, English language arts, and social studies to the "core" of education and all else to some periphery beyond that center. The humanities fall largely outside that core. Humanities definitions vary, but generally include art, music, philosophy, and language (from linguistics to foreign languages), with various additional elements ranging from women and peace studies to film. No matter how loud our protestations to the contrary, we convey the message that these bodies of wisdom are not only different, but also of lesser importance.

In our struggle to impart some critical corpus of knowledge to our students, even our gifted ones, we sometimes sacrifice wisdom for quantification (albeit quantification of great depth and complexity). We must prepare our children for a measure of self-sufficiency (translation: job and income). Yet, while never denying the significance of knowing mathematical structures (be they addition or probability), we may

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Tempo
Volume XXII Issue 2 Spring 2002

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The Texas Association for the Gifted and Talented (TAGT) is a nonprofit organization of parents and professionals promoting appropriate education for gifted and talented students in the state of Texas.

TAGT *Tempo* is the official journal of the Texas Association for the Gifted and Talented. It is published four times a year in January, April, July, and October. The subscription is a benefit of Level I membership.

Material appearing in *Tempo* may be reprinted unless otherwise noted. When copying an article please cite *Tempo* and TAGT as the source. We appreciate copies of publications containing *Tempo* reprints.

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Executive Director's Update

Throw Away Kids?!?

Amanda D. Batson, Ph.D.

Why are gifted students considered throw away kids? Our society's assumption that these kids will make it anyway screams out at every turn. Yet these students are children who need attention, support, and challenges to develop their potential.

Please don't misunderstand me. I applaud the numerous efforts of elected officials, policy makers, school administrators, counselors, teachers, and other concerned citizens to ensure that students below grade level are brought up to speed and maintained with their age peers. I congratulate President George W. Bush and the United States Congress for their bi-partisan adoption of the national education bill entitled "No Child Left Behind." However, when we dig more deeply, the picture becomes quite clear regarding certain gifted youth.

The 2002 Winter Olympics just concluded in Salt Lake City. Some 77 nations and 2,500 athletes plus thousands of coaches, family members, and other spectators descended on Utah to cheer and honor these gifted individuals. According to news reports, $430 million dollars were spent on the Olympic venues. These funds do not include the millions on security, travel, training, uniforms, equipment, and years of competitions among these talented performers. Again, don't get me wrong. I am an avid Olympics television viewer and vicariously experience the thrill of victory and the agony of defeat.

The Super Bowl, the World Series, the Masters Golf Tournament, the National Basketball Association Championship Series, and thousands of other events identify and challenge even the most gifted athletes. Print publications including newspapers, magazines, and on-line services devote millions of print inches annually to reporting on the accomplishments and defeats of talented athletes, their coaches, programs, and sponsors. Bravo to these role models especially those whose lives reflect the highest ideals on and off the competitive venue!

Artistic performances also garner air and print time. Whether music video, symphony concerts, performances by popular country stars, live theatre, movies, musicals—Academy Awards, Grammy Awards, Tony Awards, and others recognize, honor, and encourage gifted performers. Again, accolades to these industries and these talented individuals and groups!

Both athletics and the arts are rightfully offered and emphasized in Texas schools. So why are students disposable who are gifted in other disciplines, e.g., languages, writing, mathematics, sciences, history, etc.? Let us return to the recently adopted federal education legislation entitled "No Child Left Behind." This title is simultaneously enticing and misleading. Certainly any and every child who is performing below her grade level peers, especially in reading and mathematics, must receive special attention and support. Our society is in agreement that use of the English language (reading, writing, speaking, listening, thinking) and applications of mathematics are basic keys to success. This legislation seems to assume that if a child is performing at grade level all is well. What about those children who are performing above grade level? One envisions the federal government leading the chorus of "Oh, the gifted kids will make it anyway."

Perhaps the federal support for gifted students is found in President Bush's proposed budget for fiscal year 2003. That budget request is for $2,128,000,000,000 or 2.128 trillion dollars. The budget proposed by the White House is the first to exceed two trillion dollars. According to the Austin American-Statesman, this amount if stacked in dollar bills would stretch nearly 144,419 miles or two-thirds the distance to the moon. However, there is not one dollar proposed for the education of gifted/talented students.

At the state level, the Joint Select Committee on Public School Finance continues its hearings. In March 2002, the Committee will begin to entertain possible solutions

(see BATSON, page 13)

The Place of the Humanities in the Gifted Program

Dorothy Sisk

If we are to educate our brightest and most able students, our gifted and talented to develop the commitment and ability to lead toward a more humane future; we need to set about that task with dedication and a true sense of purpose. The chairman of the National Endowment of the Humanities (NEH), William R. Ferris, recently stated in their monthly newsletter, "We all know the humanities have the power to heal and to focus our lives, and never has that power been so challenged as by the events that shook our nation on September 11; the humanities have never been more critical to our future as individuals and as a nation than they are today." Through the study of the humanities; gifted and talented students are able to immerse themselves in intellectual inquiries in every realm of human endeavor, and these studies motivate them to analyze social issues and values in a structured and disciplined manner.

APPLICABILITY OF HUMANITIES TO THE NEEDS AND CHARACTERISTICS OF GIFTED STUDENTS

Gifted students have a keen sense of justice and an early moral concern (Seagoe, 1966, Silverman, 1993, Torrance and Sisk, 1989) that lead them toward wanting to make a difference. Their curiosity, exceptional reasoning ability, complex thought processes and ability to deal with the abstractness of ideas represent intellectual characteristics that can be applied in the humanities using a problem-based approach. Gifted students also have an emotional and intellectual need that aims toward a life-time plan for self actualization, and they need role models to nurture and develop their talents. These role models can be figures in history, as well as contemporary role models who are addressing the problems of our time, and choosing to make a difference.

Paul Brandwein (1979) one of the pioneers in the humanities, in *Self Expression and Conduct: The Humanities* stresses that by studying inspiring lives of the past and the present, gifted students can become involved in learning that blends the past and present into relevant learning as they research the challenges of selected individuals in present and past controversies. Brandwein viewed the humanities as a vehicle to strengthen the value system of gifted students and enable them to identify challenges for themselves, life goals and career paths.

PLACE OF THE HUMANITIES IN GIFTED PROGRAMS

An examination of most gifted programs identifies some aspect of the humanities in the educational offerings with gifted students engaging in curriculum best described as "humankind" studies. The paradox in the study of humankind is by studying the contributions of others, gifted students study themselves. Studying standard-bearing individuals such as Martin Luther King, Jr., Mohandas Gandhi, Golda Meir, Nelson Mandela, Mother Teresa, Franklin Delano Roosevelt, Jr. and countless others who have made a difference enables gifted students to see themselves more clearly and to catch a glimpse of their own future. In elementary and middle school gifted programs, the humanities are often included in language arts or social studies, with gifted students studying the *Junior Great Books* or Jacob Bronowski's *Ascent of Man* at the secondary level. Many secondary gifted programs also offer a combination language arts and social studies class.

DEFINITION OF THE HUMANITIES

The Humanities are defined by Congress and NEH in terms of specific academic disciplines: history, history and criticism of the arts, religion, philosophy, languages, linguistics, literature, jurisprudence, ethics, and those aspects of the social sciences employing historical and philosophical approaches. Another way to define humanities is the study of the natural interrelationship of the intellectual, social, spiritual and aesthetic human endeavors. A useful metaphor for this definition and the role of humanities in gifted education is that of a "tapestry of human experience" woven with many threads. The threads include history, philosophy, theology, psychology, sociology, literature, drama, film and TV.

CHARACTERISTICS AND VALUES OF THE HUMANITIES

Bryan Lindsay, former Secretary of the National

Association for Humanities Education, identified five characteristics of the humanities: Value-Focused, Interdisciplinary, Topical, Student-centered, Intellectual and Creative. These are discussed below with interdisciplinary and topical combined, as well as intellectual and creative.

• Humanities focus on values

Values can be defined as commitments that significantly shape our behavior. By employing values, we conduct our daily life and interactions with one another, with our community, our state, our nation and our world. Some people employ their values to shape the destiny of all people; these individuals represent the gifted and talented of their time. The values of these gifted and talented individuals shaped their 'involvement link' with others, motivating them toward lives of service. The subject matter of the humanities focuses on the study of these gifted and talented individuals throughout history who conducted their lives to not only affect others, but to profoundly affect themselves. Albert Schweitzer is one of these individuals. At a very early age, he was struck by the needless suffering of animals, and out of this early experience, Schweitzer developed a life value which he described as a 'reverence for life.' At age 30, he decided to train to become a physician and to live a life of service in Africa. Values that significantly shaped Schweitzer's behavior and his involvement link were compassion, a connectedness to nature, and a desire to make a difference (Sisk and Torrance, 2001).

• Humanities are interdisciplinary and thematic

In selecting the content of the humanities, the search cuts across time and space to locate historical examples of human experience. Subject matter can be derived from the vast archives of human experience in history, literature, music, art, sculpture, architecture, drama and dance, with all of these areas linked through their coexistence in time. Organizational themes can be employed, including leadership, heroism, power, human rights, life stories, and martyrdom. In their study in the humanities, gifted and talented students engage in gathering information for synthesis, analysis, interpretation, and evaluation, and they need to be guided by their teachers in processing information and reassessing their own values. The study of the humanities, provides gifted students opportunities to grow and become, as described by psychologist Carl Rogers (1980), or in the words of psychologist Carl Jung (1963) to be able to create their own personal myth.

• Humanities are student-centered

An important aspect of the study of the humanities is its open-endedness, since the ends are not predetermined. Appropriate educational experiences for gifted and talented students need to be future-oriented; consequently, the humanities are natural curriculum vehicles for inquiry of questions that matter (Tower, 2000). Questions to be researched may focus on examining what the study of leadership portends for developing tomorrow's leaders in science, government and the arts. In the humanities, teachers of the gifted and talented become co-investigators in a co-teaching/learning process, and significant learning takes place for both the teachers and the students. Learnings for the students include how to cooperate, how to share and pool knowledge, experience and expertise so that maximum intellectual and personal growth can be experienced by all. Individual gifted students can identify questions they wish to address and to answer, and their teachers guide the process toward fulfillment and refinement, assisting the students in integrating the individual questions within an umbrella class theme. As gifted students identify what they want to study and learn, the open-endedness of humanities enhances

(see SISK, page 15)

A Model for Success: The EPISD Humanities Gifted and Talented Program

Fara Green, Linda DeBona, Terry Peevey, & MaryAnn Clark

You know who they are, the visible ones. They never raise their hands; they shout out answers; they always draw attention to themselves. They are the faces you see in your sleep, names the substitutes leave on your desk.

You also know who they are, the invisible ones. They never raise their hands, never ask questions, never draw positive attention to themselves. They are just faces in the classroom, names on the roster.

Many of these students, both visible and invisible, are gifted students who through the structure and curriculum of the regular classroom have not been encouraged and empowered to explore and learn. It is for these gifted students that El Paso ISD created and developed its middle school Humanities program.

The research-supported Humanities curriculum was created and developed by local program teachers. Through comprehensive and ongoing training, the teachers continually teach, update and enhance content, processes, and products to best meet the needs of the diverse population of gifted students.

This program is offered as a three-period block at all El Paso ISD middle schools. History is an integral part of the program and is taught as a living subject through literature, art, music, and technology as a reflection of societies and their values.

Within a supportive environment, Humanities students at each grade level use challenging content and multiple processes to produce sophisticated products and presentations. Program teachers are often asked, "Exactly what are you doing in there?" To the casual observer, it is not uncommon to see a classroom which may appear chaotic. Students spill out in the halls working with different artistic media. Others may be in a stairwell using the landing as a sound stage, while inside the classroom students work on computers creating databases and spreadsheets. Simultaneously, some students work at the chalkboard brainstorming, discussing, and often arguing. Depth and complexity, evident in the variety of learning activities found in the Humanities classrooms, are intrinsic to the curriculum at each grade level.

Cultural Universals and Global Connections

Sixth grade Humanities is taught thematically around world history/cultures with the overriding themes of cultural universals and global connections. Like a boomerang, students soar from the present to the past and back, returning with experiences connecting all humanity as one. Beginning with origins, the study of prehistory and archeology sends students into the field as they simulate an archeological dig. Forming bonds and accepting the need for each other, students are drawn into the prehistoric world through the eyes of two Cro-Magnon teenagers as they listen to the novel *The Memory String*. Working together, students gather natural materials for pigments and paint their versions of the novel on classroom cave walls and ceilings. Understanding that the arts and man are entwined, students delight in their original performances of "Caveman Bands" whose members have created instruments from nature, vibrating with the rich percussive sounds of primitive times. After selecting novels which pit man against nature, students accept or reject the key factors which must be present or absent for human survival.

Moving through the continuum of time, students use universal elements of civilization, including religion, political organization, values and ethics, to analyze people and their cultures while connecting the past to the present. They compare and contrast stories of Gilgamesh to Noah, delve into the role of death and religion in ancient Egypt using selections from *Tales of Ancient Egypt*, and experience life in Russia under the Soviets while reading *The Wild Children*. Using characters from

Greek mythology, students create and videotape soap operas. They identify themes such as hubris, create commercials for ancient products, design and make costumes, props, backdrops, and TV guides, and incorporate music.

Using computers and digital technology, every sixth grade class becomes a publishing house that produces an eight-page historical newspaper which mirrors the professional quality and format of any large city daily paper. Students submit resumes and cover letters as they apply for newspaper staff positions. These letters are read anonymously with students choosing staff positions along with the paper's historical theme. Next, students beat the pavement as they gather in-depth research, capitalizing on a wide array of primary and secondary sources such as historical texts, archival documents, interviews, and electronic and Internet data. Using the tools of the trade, these newspaper staffers write news and feature stories, express themselves through editorials, investigate the world of business, and invent and illustrate cartoons. Staff members collaborate on page design and format, stage and manipulate digital photos and images, and publish the newspaper. After the newspapers are finished, each class sends copies to the other sixth grade humanities classes throughout the district to share, read, analyze, and enjoy.

Students return to the present as they identify the emergence of modern-day nations while questioning the role of conflict in the ever-changing world of today. In groups, students become experts on selected wars and revolutions as they dissect the religious, economic, political, and social causes of conflict. Phase one of this two-phase project is research-based. By delineating causes, prominent figures, major incidents, and resolutions, students organize data categorically on a thematic display. Group members also create life-sized paper dolls with the pigment and physical features of the peoples involved in the conflict. Layer upon layer, from hats to belts, weapons to provisions, these dolls become the fighting men. The displays and costume galleries of soldiers portray the essence of the conflict. Totally immersed, students draw upon the strengths of their peers to complete the second phase of the project. Using computers, groups create databases and exchange information. Designing giant floor maps on muslin, students dissect and discuss the impact of a significant event. The relationship of past conflicts to corresponding present-day regions is visualized by students through PowerPoint presentations that integrate sound bites, music, and graphics. The power of sound transcends time when students relate hot news items, commentary, and commercial interruptions via radio drama. Imagining profound losses, students express themselves in dramatic tributes through venues such as dance, music, song, and poetry. Isolating the civilian from the soldier, students illustrate murals vividly depicting the routines, hopes, and dreams of war-torn peoples. The year ends as parents and community members walk through the war gallery and experience cultural universals and global connections through the eyes of students.

> We're not just studying **subjects**. We're using our **imaginations** to extend our **brains**.

Conflict, Compromise, and Resolution

Seventh grade Humanities centers on Texas history and beyond with the theme of conflict, concentrating on revolution, problem-solving, compromise, and resolution. Literature provides an extension for broad-based themes. Students explore the question of heredity versus environment while reading *The Light in the Forest*. Realizing that solutions do not come easily and resolutions may never occur, students express their feelings and frustrations through many forms, including plays, visual and multimedia art, or music. Probing the division of cattle ranchers and farmers, students use *Shane* as a springboard to learn the history of barbed wire, a symbol of the changing West. While reading *Johnny Tremain* and *Sarah Bishop*, student consider questions such as: Does the identification of a traitor depend on one's point of view? Does conflict create heroes, or do heroes create conflict?

(see GREEN, page 22)

The Texas Academy of Leadership in the Humanities: Teaching Loving Kindness in the Heart

Mary Gagné

Charles Dickens began his novel *A Tale of Two Cities* with these words, "It was the best of times. It was the worst of times." However true those words were in the nineteenth century in Europe, they are also dramatically true for the twenty-first century in the United States. Amidst unprecedented prosperity, accomplishment, and well-being, there is a sense that somehow things have gone horribly wrong. Nowhere is this more evident than in the violence that haunts our children in school. One hundred and sixty thousand (160,000) students stay home everyday day because they fear being harmed in school. Studies reveal that 12% of students are classified as "bullies" by school authorities. Three fourths of students who were convicted of shooting students and teachers in schools were students who had been consistently bullied at school over a long period of time. NBC reporter, Fred Francis, in his coverage of the Santee, California school shootings quoted scholars as referring to school as a culture of 'put downs'.

Dr. Kay Redfield Jamison wrote in her landmark book, *Night Falls Fast: Understanding Suicide*, "In the United States, between 1980 and 1992, the rate of suicide increased by more than 120%. In 1995, more teenagers and young adults died from suicide than died from cancer, heart disease, AIDS, pneumonia, influenza, birth defects, and strokes combined" (Jamison, p.48). Evidently, something is wrong with American children's values. Increasingly, they do not value life — either their own or those of other children. The crisis of character has led the governments of thirty six states to encourage their schools to teach "character" as a subject in their curriculum. Eleven states now require their schools to teach character.

The state of Texas has responded to this challenge by establishing the Texas Academy of Leadership in the Humanities at Lamar University in Beaumont, Texas. The Academy is a two-year honors program that allows juniors and seniors statewide to complete their last two years of high school credits and their first two years of college requirements concurrently. A student completes our program with a high school diploma and 60 or more college credits. All tuition is paid by the State. Central to the mission is the development of compassion as the main character trait in the state's future leaders.

Character is what distinguishes one person from everyone else. To be educated is to be equipped to find character and to live character. The students of the Texas Academy of Leadership in the Humanities pursue and achieve these goals by serving those in need. When someone asks: What is leadership in the humanities? one can honestly state that leadership in the humanities is being of service to one's fellow human beings. The Academy students are involved in true leadership programs that emphasize service in the form of compassion. The Academy asserts that compassion is a value that offers an immediate, meaningful, and helpful response to suffering. Compassion strengthens the person. The Academy further asserts that compassion can be taught by creating an environment in which everyone lives and works in community.

For example, a 16-year-old Academy student recently offered an insightful lecture on "The Possible Human." His lecture introduced students to an emerging culture of compassion. Moving from international advancements to spiritual development, from health initiatives to ecological programs, he supported his belief that humankind is evolving a fresh awareness of what it means to be 'fully human.'

The Academy fosters an environment of compassion that can be taught and practiced in any situation. There are four vital elements in operating a compassionate environment. First, there must be philosophical clarity. Second, there must be strategies that fulfill the philosophical foundation. Third, there needs to be an on-going dialogue about compassion. Finally, there is the need for concrete activities that provide for the overt practice of loving kindness of the heart.

The philosophical foundation developed at The Texas Academy of Leadership in the Humanities is consistent with the definitions utilized with most programs that involve teaching compassion. The Academy differs, however, in one crucial aspect. Compassion is usually presented as something to measure up to, something that is the hallmark of great people, heroes, and saints. The Academy understands that compassion is the most average, every day virtue. George Eliot elegantly referred to compassion as the act of making life less difficult for others.

The second concern for an environment of compassion is a set of strategies that fulfill the philosophical foundation. The Academy has identified ten strategies used to help humans learn to be more compassionate.

1. Treat all creatures with kindness.
2. Use fables, stories, film and music to illustrate how to be compassionate.
3. Remind everyone to always speak kindly.
4. Call people's attention to their own compassionate behavior, especially the young. (This does not have to be a demonstrative device. Just a simple sentence like: "I was really touched when you…" will help the person see his/her own compassion.)
5. Help people to practice compassion while they are suffering in their own life.
6. Enjoy the act of compassion as its own reward. This is often best done by being in a group doing compassionate work.
7. Learn to do compassionate listening.
8. Learn the value of beauty. In his great dialogue, *The Symposium*, Plato relates the ability to care for another to one's sense of the beautiful.
9. Learn to be kind NOW. Compassion that is delayed, withers.
10. Learn to observe that though compassion is at the heart of all people, it is clearly present in those who do admirable deeds. Albert Einstein, who is noted primarily for scientific work, wrote, "From the standpoint of daily life however, there is one thing that we do know, man is here for the sake of other men" (1990).

The Academy is so designed that gifted and talented students spend a good deal of time with the Academy staff. Additionally, each student has a mentor selected from the faculty. The staff is in constant communication with faculty, parents, and most of all, the young people themselves.

The third aspect of the Texas Academy of Leadership in the Humanities compassionate environment is the on-going dialogue about the nature, practice, and challenge of loving kindness in the heart. The reason for establishing a humanities leadership program for gifted and talented junior and senior high school students in a university is to teach the skills of leadership. Long ago Aristotle posted the qualities of a good leader as *ethos* (moral quality, moral character), *pathos* (ability to touch feelings, touch emotions), and *logos* (ability to give solid reasons that move people intellectually.)

The Academy gives gifted and talent students the opportunity to live in a continual dialogue about the nature of being human. In addition to the full university humanities curriculum, students are required to take one course each semester as a whole group. Each semester, a specific aspect of humanities focuses on poetry, art, or music appreciation. This year the focus in the humanities is Alexis de Tocqueville's *Democracy in America*. *Democracy in America* is the intellectual backdrop for a substantive discussion of various topics, including representative democracy, the responsibilities that attend democratic citizens, the intellectual origins of America, and the relationship between the cultural movement of Romanticism and the emergence of an American *ethos*. As a corollary to their

. . . **compassion** can be taught by creating an **environment** in which everyone **lives** and **works** in **community**.

(see GAGNE, page 18)

Connections: Katy Kids Relive World War II

Lesli Edge

Educational research shows that deeper learning, the synthesis level of learning of Bloom's Hierarchy, is acquired by connecting new learning with older memories (Heller, 524). Based on that knowledge and the need for a dynamic differentiation strategy to make history come alive for gifted students in the fifth grade in Katy ISD, teachers developed tiered lessons that linked the kids to the community where they lived. These lessons were rich in choices, as advocated by Renzulli's Enrichment Triad model (1997), and provided ample opportunity for the students to have contact with a real audience. They received immediate feedback, and in the process, they became resident experts on numerous aspects of the content. Differentiation was provided with Kaplan's emphasis on the process in mind (1986). Special attention was given to providing multiple opportunities to experience the depth and complexity so necessary to keep these youngsters engaged in the learning experience.

This Oral History web project was created as a result of an earlier project created in 1998. In it, fifth grade students at one elementary campus entered *Thinkquest Jr.*, a nationwide technology-based contest in which they were challenged to create an educational web site on a topic of their own choosing. They chose World War II, and their research was homegrown. They elected to find out what members of their own families did during the war. The project was meaningful as well as successful, both at home and nationally. Their efforts earned them second place in the Social Studies division of the *National Thinkquest Jr.* competition, but more importantly the memories that were associated with this project will last a lifetime. Students came to realize that they had "heroes in their own families", and that history was a living thing. A strong, lasting connection was made.

Taking this concept to the next level was the logical step. To make the connection on a larger scale, a cooperative venture between Katy ISD, and the Katy Veterans of Foreign Wars (VFW) Post 9182, was proposed in 1999. Three Katy elementary schools were chosen for the pilot project. The gifted & talented teacher and the technologist for these campuses became the co-facilitators of the project.

Much groundwork however needed to be laid before the students and veterans would actually meet each other:

- The Texas Essential Knowledge and Skills (TEKS), and the student textbook were reviewed to establish what compacting needed to be done to reach mastery of grade level content.
- A student text, rich with interdisciplinary, interactive links to enhance depth & complexity of the content, needed to be generated.
- Lesson plans with quality links, multi leveled activities, and integrated assessment tools was developed for teacher use.
- A kid friendly, easily navigable web environment needed to be created.
- Finally, raw data that was to be the basis of the project had to be collected.

To facilitate data collection, the VFW post created a data collection sheet that was sent to all members who fought in WWII. Those who wanted to participate in the project were asked to share photos and other memorabilia of the period to use on the website. They signed release forms that allowed us to post these items and the stories that would later be shared with the students. Once the data came in, the fith grade students needed to choose a VFW Post veteran to interview based on the area of interest they had developed in their studies. Then it was time to get to know each other. Both groups were nervous about this meeting.

Until this point, the project had been very school based in nature. From this point on, the students took on roles that would put them in "real life experience" situations. They were about to become active agents in their own learning. The level of interest, and need to "do it right" became apparent right from the beginning. Their first real connection with the veteran they chose would be a phone call in which they would introduce themselves and try to set up an interview date. Phone etiquette was practiced, practiced, and practiced some more, not necessarily at the teacher's request. Quite the opposite in fact: the students were so concerned about making a good first impression that the teachers had to assure them that they were going to do just fine. When it came time to make the calls, each tentative "Hello my name is"... ended in a relieved little sigh, followed by a triumphant grin, after which you could not stop the outpouring of "Did you know..." or "He was really funny!" It all ran together and sounded like a foreign language that only the kids themselves seemed to understand. We had "First Contact!"

On the tide of such enthusiasm the students went about the task of developing interview questions with the zeal of reporters with a major scoop. Discussion about what was an appropriate question, how to ask questions that got more than a "yes" or "no" answer, and how to take notes when some one was talking to you led to research on the world wide web. Questioning techniques were honed more thoroughly, and in a more lasting way than a lecture, work sheet or essay could ever do. Memory associations were made at an astonishing rate.

With the research done and a date set, it was time to get ready for the interviews. The students wanted the veterans to feel as comfortable and welcome as possible when they actually met them for the first time. They felt that an USO setting would show the respect they felt, as well as let their respective interviewees know that they had done their homework. A quiet area was set up for the interviews, with a video camera, a tape recorder, a digital camera, and a microphone.

The long awaited interview date arrived. Punch and cookies were set out, red white and blue banners and welcome signs were hung, and "Big Band" era music was playing in the background. Then the veterans began to arrive, and it was pure magic. Pairs of heads leaning together in earnest conversation were scattered around the room. War relics, maps, and old photos were shared, and interview questions were discussed. Each age group's private worries about whether they would have anything of interest to share with a different generation melted in the buzz of conversation heard around the room. Stories not heard for half a century were being retold to a fresh and eager audience. The connection of these stories to the text the students had read in their books, and on the web was evident in the comments of, "Oh I see," and, "I wondered what that meant," which could be heard coming from every corner of the room.

The actual interview sessions stirred other memories and a new wave of stories surfaced. The very human side of war began to emerge. Both happy and sad stories intermingled, and a very rich and colorful image replaced the limited view that textbooks portrayed. The two-hour interview process we had predicted turned into three and four hours, and all parties reluctantly parted ways, so much richer for the experience.

In the reflective aftermath of the interviews, the students were overwhelmed with the "how to tell it all" aspect of the next phase of this project. They began to realize that the real work was just beginning.

Project Time line

Oct 12	3:00 p.m.	Cooperative meeting between the VFW & KISD staff
Oct. 20	3:00 p.m.	G/T & Technology team leaders go over TEKS & Standards
Nov. 1	2:45 p.m.	Informal brainstorm session on WWII possibilities
Nov. 12	3:00 p.m.	Project was given the go ahead
Jan. 3	3:00 p.m.	Slideshow presentation of Vision for the Web site
Jan. 11	3:30 p.m.	WWII large group meeting to establish perimeters for the project.
Jan. 25	3:30 p.m.	WWWII small group meeting to brainstorm layout of website
Jan. 28	12:00 p.m.	WWII half day for working on website
Feb 1	12:00 p.m.	WWII 12:00 small groups working on website
Feb 18	3:30 p.m.	WWII—PM working on website
Feb. 22	3:30 p.m.	WWII— large group presentation of preliminary layout
Feb 29	3:30 p.m.	WWII rehearsal meeting at
Mar. 1	7:30 p.m.	WWII presentation at the VFW Post 9182
Mar 28	3:30 p.m.	WWII Interview preparation meeting
Mar. 30	4:00 p.m.	WWII Interview preparation meeting
Apr 10-14	9:30 till…	Interviews at 3 campus'
Apr. 20	4:00 p.m.	Leadership class presentation
May 11	10:00 am	Grand Kid's Presentation
May 17	2:30 p.m.	Principal's Presentation
May 19	TBA	WWII Celebration

More discussion ensued which lead to rough drafts and re-writes, and follow-up phone calls to clarify particular points. Video tapes were watched again and again to ensure accurate telling of the stories that were shared. Once again, the students were their own truest critics, trying their stories out on each other to see if it would appeal to other students. It became very important to these students that others hear the stories they had heard.

Once they were satisfied with the text they had generated, it was their turn to find links that would bring their readers as close to the subjects as they now felt. In the process, the students covered the basic information needed to meet the state standards (TEKS) and they were now experts in their own right on some aspects of WWII. A deeper meaning had been attached to this subject forever. In less that a month, these students were able to appreciate subtle nuances that shaped the events of the war.

Technology was an example of a pivotal advantage which ultimately gave the allies the edge they needed to be victorious. For example, never again would any of these students confuse a Jeep with a half-track. They now knew there was a world of difference between those two vehicles, and they were going to pass that knowledge on to the next group of fifth graders as vividly as it had been passed to them. Finally, web links, photo and video stream links would be added to their text.

As the students completed their projects and deliberated about which links to add and which to omit, a connection to the community was evolving and a social consciousness and sense of civic pride began to emerge. They began to understand the legacy they were helping to create. They had helped make a difference, and with this process, they had also gained a lasting insight into history first hand (Duffy & Jonassen). They had begun to understand that it's people just like themselves who make history, one day at a time.

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Parents and Classroom Teachers Wanted

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We are actively seeking articles from parents and classroom teachers. You have invaluable expertise and information to share with the readers.

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(from BATSON, page 3)

that have been analyzed by the Legislative Budget Board. The problems with the current Texas public school finance formulas do not seem to impact gifted students yet reports fly in the face of this observation. As local school districts reach the $1.50 cap on local taxes and as these same districts are required to return more and more revenue to the state, reductions in expenditures are demanded to remain solvent. Reports are now surfacing in which local school districts are reducing or eliminating classes for gifted students, enrichment programs, and services that challenge talented youth.

No funding in the federal budget. Programs and services at risk in Texas. Accountability measures that do not allow gifted students to show their learning. These legislative actions and requirements indicate gifted youth are throw away kids. We must take bold, sustained steps to ensure they are not discarded.

All children and teens are our future. The loss of just one youngster is untold loss to our world. Gifted students are children first. They need and deserve access to challenging instruction, opportunities to grow academically at least one year for every year in school, assessments that allow them to demonstrate their learning, and pertinent accountability data for their teachers and parents.

The TAGT 2002 Executive Board affirmed as their first goal the following: advocate appropriate services and accountability standards for all gifted and talented students. Your participation in this advocacy effort is critical. Your continued membership in TAGT and your voice at the local school and district for gifted education are two ways you can make a positive difference for gifted students. Encourage friends, who are parents and grandparents of gifted students, to join and participate in TAGT.

Protect gifted students and their opportunities to develop their potential. Let us learn from another advocacy organization: a gifted student is also a terrible thing to waste.

Humanities and Gifted Students

(from COLLETT, page 2)

facetiously assume that learners will get the humanities on their own (a familiar-sounding phrase, isn't it?).

As I pondered the concept of the humanities, I was drawn to the particular nuances of a similar sounding set of words. Let us begin with the word "humanities." One definition describes them as "the branches of learning that investigate human constructs and concerns." Would not mathematics, even the sciences, fit within that definition?

The humanities deal with the constructs of humans. Many would argue that they provide us with more culturally rich lives. They help us answer the question, "What does it mean to be human?" The word "humanism" does not help. Instead, it carries us far afield into a value-laden realm that evokes strong feelings in a number of different camps.

"Human," only describes the species we are, Homo sapiens. Even the word "humanity" simply describes the collective "us." Adolph Hitler, Osama Bin Laden, and Jeffery Dahmer are all human, all members of humanity. I hardly equate them with more culturally rich lives and, if they answer the question above, they do so as negative examples.

When we arrive at "inhuman," we reach a term that provides more fuel for contemplation. To be inhuman is to be brutal, unfeeling, barbarous, cruel, or a "savage." The antonym of inhumanity is not human, but humane, one who is benevolent and compassionate. One might then argue that inhumanity is a lack of the humanities or, to rephrase a bit, the antonym of "Humanities" is "Inhumanities."

What, then are the Inhumanities? Several "courses of study" come to mind. These include Hatred, Prejudice, Fanaticism, and Anarchy, with various additions such as Arrogance, Bigotry, and Chauvinism, Intolerance, and, in some circumstances, Callous Indifference. As a student of history and one who can recall such life-defining moments as the Kennedy assassination, the Kent State incident, and September 11, 2001, I have no doubt that extensive offerings of the Inhumanities exist to answer the question, "What does it mean to be inhuman?"

We may neglect the Humanities at our own peril. How can we presume to think that we humans can utilize mathematics and physics to calculate and formulate the means whereby we can produce nuclear weapons with no thought of the humans (and their art and artistry) upon whom we unleash them? If we utilize our scientific knowledge to pursue the question of "What *can* we do?" into cloning, genetic engineering, abortion, and euthanasia, do we not also need the Humanities to cause us to ask the question, "What *should* we do?"

While we cannot abandon the core knowledge we humans have so painstakingly crafted over several millennia, we could strive to find innovative ways to infuse the humanities within that core. I run across interesting books that, to me, seem to capture the essence of humanities constructs within core contents. Leonard Shlain (1991) provides a fascinating interweaving of similar insights in the history of art and physics, with the artists at times leading the exploration. Edward Rothstein (1995) elaborates mathematical knowledge with musical structures. John Barrow (1995) finds sources of human creativity within the scientific structures of the cosmos. John Briggs and David Peat (1999) discern philosophy within chaos theory. Michael Schneider (1995), in a platonic approach, utilizes the first ten numbers to examine everything from geometric structures to the archetypes of art. Finally, Douglas Hofstadter (1999) braids together math, music, literature, art, computers, humor, logic and illogic to investigate that most human construct, the mind.

Plato, in *The Republic*, argues that philosopher kings would rule the ideal society. Before we cast such an undemocratic thought aside, we might ponder a moment the idea of being led by lovers of wisdom, whether we make them kings or caliphs, prime ministers or presidents. If we neglect to provide our gifted students with the beauty, depth, and richness of humane understanding the Humanities provide, should we be surprised to find the Inhumanities flourishing?

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(from SISK, page 5)

opportunities for multiple options in problem identification and product definition. This process represents the freedom of learning that gifted adolescents require and request for validity in their learning process (Moje, 2000). The importance of providing choice options was stressed in a comprehensive review of the role of the humanities by Witt et. al. (1980) in the *The Humanities: Cultural Roots and Continuities.*

- The Humanities are intellectual and creative

The humanities are intellectual, capable of tapping the gifted students' desire to know and their keen curiosity about themselves, the environment, the culture, the planet, and the cosmos. In addition, the humanities deal with feelings and aesthetics, and employing the tapestry metaphor, "gifted students will pull their tapestry together, and weave new beautiful threads by synthesizing, restructuring, recording existing data, concepts and models to generate new and different designs, and expressions." As they explore the record of humankind in the world, gifted and talented students will be able to develop a concept of the future as an infinite array of possibilities. Rubinstein (2000) suggests employing "Historical Splits" in which students generate a list of famous people who have contributed to society before 1930, and people who have contributed after 1960. Students research the lives of these people and their contributions, then divide into pairs. The pairs consist of one student representing a pre-1930 famous person and another student representing a post-1960 person. The pairs write a short dramatic scene (time and place), including pertinent facts about the famous people, their contributions or conflict, and then stage the scene for their class, or another appropriate audience.

By studying the past, gifted students come to view the past as the future of the future. As A. Harry Passow, former Jacob Schiff professor of education at Teachers College, Columbia University said, "If we are to know where we are going, we must know where we have been." The humanities represent the history of the human spirit, the conduit through which we enter, live in, and leave the world.

AN EXEMPLARY HUMANITIES PROGRAM: PROJECT DEEP

Diversified Educational Experiences Program (Project DEEP) in Witchita, Kansas was a nationally validated program in the humanities in which students studied T. H. White's *Once and Future King* in a World Civilization course in Grades 9 and 10, and American Civilization in a second course in grades 11 and 12. Project DEEP represents an exemplary program in the humanities, with both research as a primary focus.

- DEEP Identification of Students Gifted in the Humanities

The procedure used by DEEP to identify students for their program represents one model for identifying students gifted in the humanities at the upper elementary, middle and secondary school level. Basic criteria for selection included grade point average, hobbies, and interest. Student test scores in reading, other standardized test scores, and teacher recommendations were used for initial identification. English and social studies grades were then considered, along with student writing samples, for creativity, content, grammar and presentations of ideas for final selection.

- DEEP Program Emphasis

The DEEP program was staffed by experienced teachers in English and social studies who served as advisors, consultants and learning systems managers. Students were scheduled into two consecutive class periods to learn to design and evaluate their learning experiences. They set general class goals and specific individual project goals for their performance, and they developed and used decision making and goal setting, arriving at consensus, project planning and time management skills. Students completed projects based on their goals and presented the results of their learning to the entire class of 80 participating students. In daily integrative class meetings, the students and the teachers worked together to clarify connections between issues and findings and to identify and to reflect upon their own experiences, feelings and perspectives. Students evaluated their projects, as did the teachers, but the emphasis was on student evaluation of the projects.

Mythic Themes

- Becoming an individual, including leaving home *(Peredur the Son of Evrawe)*
- Fighting for autonomy *(Gilgamesh and the Tree of Life)*
- Pursuing the quest for meaning *(Perseus)*
- Position and power, including finding a vocation *(Myth of Two Brothers)*
- Greed and ambition *(King Midas)*
- Responsibility *(King Minos and the Bull)*
- Rites of passage, separation loss, and suffering *(Orpheus and Eurydice)*
- Spiritual quest *(Parisifal)*
- The final Journey (*Indra and the Parade of Ants*)
- Relationships, love, and rejection (*The Enchantment of Merlin*)
- Marriage *(Gerda and Frey)*

Figure 1

PROJECT MYTHIC JOURNEY

Another example of the use of the humanities with gifted and talented students is Project Mythic Journey. Eighty-five gifted and talented middle school students from throughout the state of Texas were involved in exploring the deep meanings and broad theme of Mysteries of Life and Human Relationships which used the second definition of the humanities as the study of the natural interrelationship of intellectual, social, spiritual, and aesthetic human endeavors. (Sisk, 2001). The myths were grouped according to broad themes (see Figure 1).

The gifted students read the myths and identified questions they wanted to pursue and to discuss; then they worked in small groups of five to discuss how the myths related to real life problems. They kept daily journals, to help assess their level of understanding and their ability to apply the concepts to their lives. One theme that was widely read and discussed was that of *Parents and Children.*

PARENTS AND CHILDREN THEME

To study this theme the students read *Thetis and Achilles*, which tells how parents expect nothing less than everything from their children. The theme of this Greek myth deals with the ambition Thetis has for her child. She wants her son to be a god, and the myth conveys profound insight into the secret hopes, dreams, and longings that parents may unknowingly ask of their gifted children. The students shared that oftentimes their parents want them to be better than other young people—more brilliant, unique and special. They shared how "no one can live up to such expectations." In their discussions they also pointed out that some parents want their sons and daughters to redeem them, to make good what the parents were not able to accomplish, or to live out what they felt they were denied in life.

Many of these student insights are mirrored in the myth of *Thetis and Achilles*. Thetis, the goddess mother, wants her child to be divine like her, rather than mortal like his father. The students quickly recognized the relationship with the myth of *Orion and Oenopion* in which the father attempts to totally possess a daughter.

Wide inquiry in an integrated humanities study provides gifted students with a better understanding of the world and how it works, but more important the students are able to learn more about themselves in relation to others. In small groups, they decided how they wanted to share their myth and new insights into relationships with others. Some students chose to create an original myth and use the same themes; some employed an interview format with the central characters cast in today's world and interviewed for a newscast; others used a traditional seminar approach with questions and answers; one group created a rap to share their insights; another group used drums and a round-robin discussion borrowed from their study of Maori traditions; and one group danced a Hindu dance in traditional dress and shared their insights.

A teacher summarized her experience, "The students have learned to acknowledge and respect various cultural values, and they have clarified their own values." The gifted students developed a better understanding of the world and how it works, but more importantly, they developed a deeper understanding of themselves in relation to others.

THE GLOBAL VILLAGE: A RESOURCE FOR THE HUMANITIES

In the study of the Global Village, Level 6 in the P*hilosophy for Young Thinkers* series, gifted and talented students are encouraged to address human global needs, global values and global problems. Hester and Vincent (1989) share their main purpose in writing the activity guide was to engage gifted and talented students in studying themselves, and at the same time to study people from different countries and different places on the earth. Students examine historical events and search their minds for ways to prevent war and failure in human relationships. In Part I, the students begin by studying the world to gain an overall view of serious issues. It is interesting that when the book was published in 1989, one lesson was *South Africa: Struggle for Equality* and deals with the problem of apartheid. Of course, apartheid has been abolished, but gifted students can be involved in meaningful study of what can be done to rebuild and restructure the South African economy. Part II of the book explores ways of building human relationships and students are guided to ask themselves, What kind of world do they want for themselves? Part II offers students an opportunity to enlarge their vision and to turn outward toward other human beings and to nature itself. We have used the book as a resource in the Texas Governor's Honors Program at Lamar University, Beaumont in our Philosophy classes. Hester and Vincent (1989) challenge gifted students with these words: "The challenge is for you to reconsider your own actions in light of human rights and the rights of this living planet. Values are the causes of our behavior. It is now time for you to re-think your values and take stock of your behaviors as they affect others and the planet Earth."

ELEMENTS OF AN EXEMPLARY HUMANITIES PROGRAM

An exemplary humanities program for gifted students needs to include a focus on increasing knowledge, self-expression and practical skill development to enable the gifted and talented to determine their future. Suggested elements are:

- A transdisciplinary approach to identify complex global issues to develop global awareness and multiple solutions not at the expense of any one country or people.

- Individual investigations to encourage awareness and appreciation of diversity in ideas, people and visions of the future.

- In-depth studies of people who have made a difference in history, and in current times, and group discussion to develop an understanding of competing values and the importance of individuals taking a moral stance.

- Collaboration with other gifted students, teachers and community leaders.

- Discussion and practical experiences to encourage the development of personal responsibility and commitment to leadership to address the fragile ecosystems that sustain all life.

SYNERGY BETWEEN THE GIFTED AND TALENTED AND HUMANITIES

Now more than at any other time, there is a much needed synergy between gifted and talented students and the humanities that leads toward the creation of a better and more humane world for all. To create this new world, there is a need for gifted and talented individuals to integrate, to synthesize, and to evaluate that which is, and that which could be. The humanities represent the form and substance for such assessment of the status of humankind. What is at stake for all of us today is the prudent use of decision-making ability and judgment about the future, in light of the present and the past. As we observe the new government being formed in Afghanistan, as citizens of the United States, we need a new level of sensitivity about the quality of not only our lives, but the lives of all people. Special emphasis and effort is needed now to bring the humanities back into greater prominence in education, particularly for the gifted and talented students. Involvement in studying the humanities will not guarantee wisdom for them, but the humanities will involve them in raising questions about knowledge and information, about one's inherent worth, and about responsibilities. Gifted and talented students have the potential to be the creative developers and refiners, the analyzers and synthesizers of the patterns in life, and most important they have the potential to be the forward thinking proposers of better and alternative "futures" and "presents" in the interests of oneself and others.

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(from GAGNE, page 9)

humanities course, students also attend a required, non-credit, learning activity about humanity and compassion titled the Think Tank Series. Academy Think Tanks involve specialists in a number of fields who challenge students on topics such as "Killer Kindness: What Does It Take to Be kind", "Martin Luther King: The Soul of a Leader", and "Shakespeare in Fifths, Sevenths, and Ninths: Postmodern Treatments of Shakespeare in Modern Film." Students also have a student government and have a participatory voice in the operation of the Academy. The staff meets continually with students in personal dialogue, helping students design and execute service projects. Staff meets at the beginning of each day and reviews what is happening with the students and assigns staff to work on specific needs of specific students. In short, the Academy is a learning community wherein all people live and work in an environment of and about compassion.

The fourth component of the Academy's compassionate environment is the provision of concrete service projects that provide for the overt practice of compassion. Academy students are aggressively involved in both the university and urban community. They have designed and taught an arts and humanities curriculum for an after-school program. Academy students acted as teachers' aides in a local elementary school system; every Friday afternoon they donate their time to tutor students. Academy students work in every retirement community in the city, design and execute variety shows for the facilities, and visit one on one at the retirement centers, offering the people their hearts and their time.

Academy students working with The McFaddin-Ward Historical Museum in the city designed and made an activity book for use in elementary schools on the subject of the history of their city and community. They serve as tutors on a weekly basis for an elementary school in the city. They work as assistants for The Epilepsy Foundation. At the university level, they help operate a free writing lab that helps students at all levels improve their writing. They volunteer as ushers, work hands, and countless other jobs for university programs and performances. They collect food for the local shelter and each Christmas they adopt a family in need and provide everything: tree, decorations, gifts, and food. They have invited students from various schools to attend the TALH Leadership Consortium 2002 for students who want to discover, better understand, and cultivate the qualities of effective leadership. All of these projects are handled and executed by the students.

In response to the suffering of the young, the Texas Academy of Leadership in the Humanities is pleased to have developed a program sound in philosophical assumptions, strong in strategies, aggressive in dialogue and service projects, a program that helps students, faculty, and parents to grow in compassion. It may seem as though humans are becoming more self-centered and less compassionate. The response to the events of September 11, 2001 would suggest otherwise. "Compassion is a rising star even if it is from time to time obscured in the skies." (Zeldin, P. 253)

Dr. James M. Simmons, president of Lamar University, states that "The Texas Academy of Leadership in the Humanities exemplifies the golden rule: To do unto others, to give of themselves in an effort to make their community a better place, and to help others, expecting nothing in return. This describes the students of the Academy." The presence of an environment of loving-kindness does not exempt Academy students from the failures involved in being human. But, the Texas Academy of Leadership in the Humanities understands Emily Dickinson when she wrote:

If I can stop one heart from breaking,
I shall not live in vain;
If I can ease one life the aching,
Or cool one pain,
Or help one fainting robin
Unto his nest again,
I shall not live in vain.

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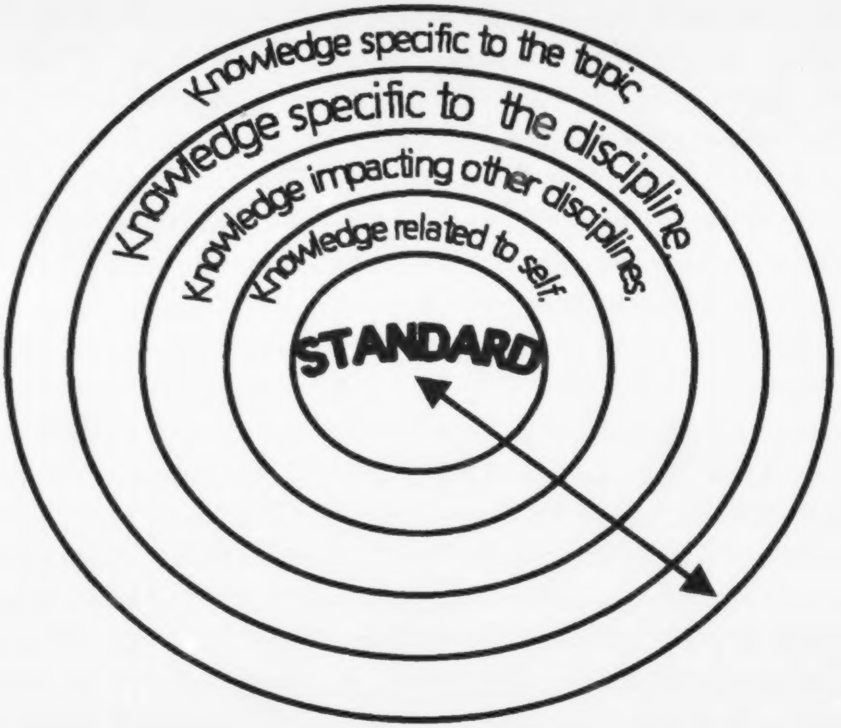
Dr. Mary Gagné is presently director of the Texas Academy. She has served as executive director of an educational think tank; as principal to a twice-recognized blue ribbon school, and as a site visitor for the Department of Education. Her school was the only high school featured in an NBC special: "A Place to Belong." In addition to teaching awards, she has received the Joseph Whitehead Educator of Distinction Award for exemplary dedication to the field of education and the TAMU "30 Notable Graduates" Award.

(from KAPLAN, page 1)


Knowledge specific to the topic
Knowledge specific to the discipline
Knowledge impacting other disciplines
Knowledge related to self
STANDARD

instructional design emphasizes each circle as another way to analyze and understand the same standards-based content. The study of the standard as a topic-specific area is quite different than the study of the same content as it relates to the discipline in its entirety. Consider the difference between defining the water cycle as an isolated topic and subsequently, relating the water cycle to the entire disciplinary area of environmental science. Further, consider the impact of knowing how the water cycle (a standards-based content area) is seen as a "conceptual force" to shape understanding in other disciplines: social studies, language arts, and/or math.

The following question exemplifies this statement: How is the water cycle presented as an integral feature in the landscape compositions of the great artists? The direction to study the concentric circles is not an important variable; a study can traverse the concentric circles from the standard outward or conversely, outward to the standard. Time, assistance, resources, and expectations need to be adjusted as factors to implement the use of concentric circles of knowing.

The need to develop the gifted students' appreciation for the humanities can be stimulated by the Concentric Circle of Knowing curriculum and instructional design. Two areas of the humanities that need to be introduced early in the students' educational careers are philosophy and psychology. Teachers are responsible to provide students with the opportunity to "intellectually sample" areas of study that often are deferred until college. The anticipated outcome derived from these studies is familiarity, not mastery or a sense of the dimensions and impact of these areas on the fundamental, basic, or rudimentary core areas of study. Key concepts and phrases to stimulate the gifted student's investigation of the relationship between philosophy and/or psychology and the content of the standards include:

Philosophy

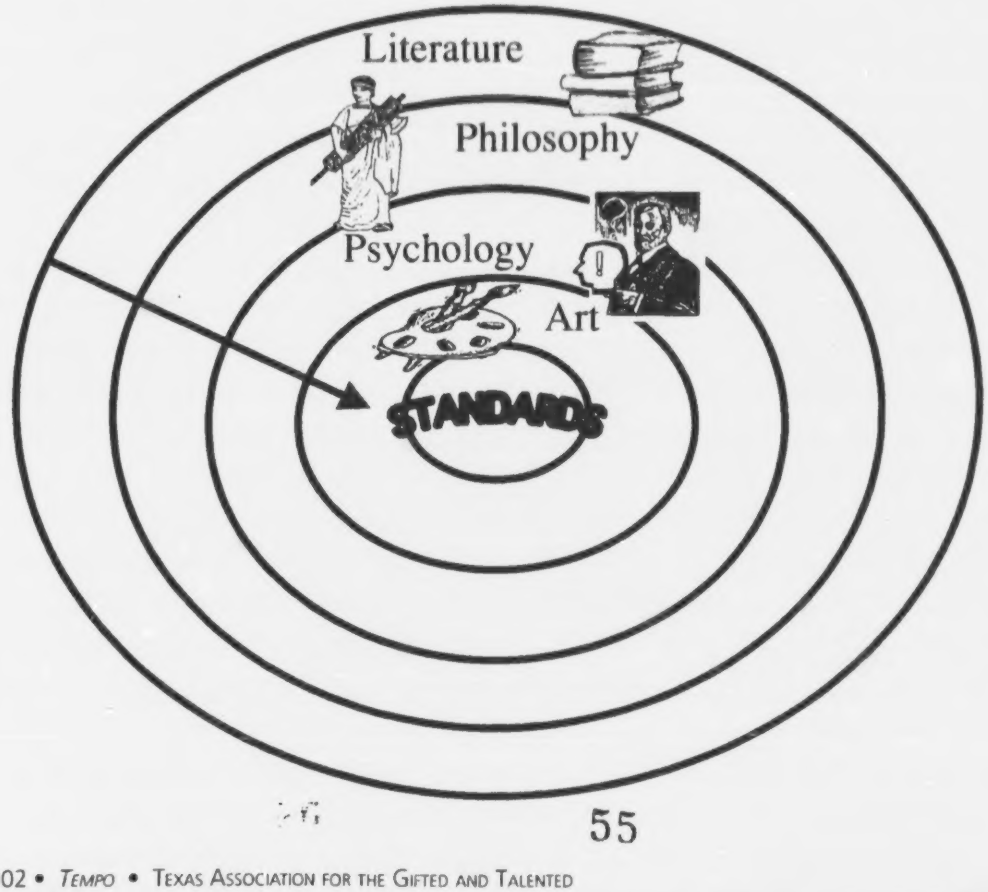
- meaning of reality
- ethics
- cynicism
- utopia
- thesis - antithesis
- "mind as a blank slate"
- pragmatism
- search for knowledge
- power
- stoicism
- materialism
- rationalism
- existentialism

Psychology

- defense mechanisms
- motivation
- behavior
- self-actualization
- basic needs
- ego or self concept

Each concentric circle of investigation enables the gifted learner to venture into another way to perceive, enrich, comprehend, and evoke wonder about the content of the standard.

Sandra Kaplan is Associate Clinical Professor for Learning and Instruction at the University of Southern California. She has served as the lead consultant for the Carnegie Middle Schools Project, Texas Education Agency, from 1993 to present. Dr. Kaplan is a past president of the National Association for Gifted Children (NAGC) of which she has been a member of since 1982. She is also a past president of the California Association for the Gifted. One of the world's foremost authorities in the field of gifted education, she has made presentations at the World Congress on Gifted, NAGC, and TAGT conferences. Recent honors include the Award of Achievement from the California Association for the Gifted and the Distinguished Service Award from NAGC.



HUMANITIES AND GIFTED STUDENTS

(from GREEN, page 7)

Students debate questions, create heroes, write diaries, or develop products that personalize characters such as Sarah Bishop. Students empathize with her as she copes with the agony of a life in a family torn apart by war. Their feelings are reflected in student-created memory boxes filled with objects that represent her struggles. Departing from the genre of historical fiction, science fiction is a vehicle used for self-examination of needs versus wants. Though reading *Twenty Thousand Leagues Under the Sea*, students determine the importance of freedom as they debate the question: What is the value of freedom as it is weighed against material wants and needs?

Literary and historical studies lead students to write and illustrate novels of their own. This professional quality product is methodically developed through the writing process, design, layout, binding, and publishing of the books. The project culminates with the young authors basking in the limelight while books are shared with parents and community members.

In the final six weeks of school, students become historians going beyond the four walls of the classroom. Armed with cameras, notepads, and tape recorders, students investigate El Paso, a unique border city steeped with more than 500 years of explosive history. Within the 150 square miles of the city and surrounding areas, students discover El Paso and its history, each taking his or her own path. They walk through 300 year-old Spanish missions, visit the Border Patrol museum, wander through the wilderness park, ride the tram up Mount Franklin, tour barracks and other facilities on Fort Bliss, or hop on the trolley to Juarez. Oral histories of friends, family, and community members are recorded and shared. Each student invites and schedules a guest speaker to address border issues and topics of relevance to both El Paso's past and modern history. Border Patrol agents, city politicians, Holocaust survivors, university professors, and artists bring local history to life. From a variety of points of view, students conclude that a hero on one side of the border is not necessarily a hero on the other side. Past and present day conflicts become meaningful and real.

Revolution and Change

Eighth grade Humanities builds upon U.S. history, discovery to reconstruction, with emphasis on revolution and change. One might wonder then at the choice of our first novel, T.H. White's *Once and Future King*. The dream of King Arthur would indeed have been revolutionary for his time period. He envisioned a world where right makes might, and all men are equal under the law. Students then journey from the struggles of an emerging nation hoping to capture Arthur's dream to the near destruction of that dream as seen in *Gone With the Wind*. Albert Einstein said that of the two, knowledge and imagination, imagination was the more important, for knowledge is limited but the imagination knows no bounds. It is through activities that stimulate the imagination that students in eighth grade Humanities approach history, literature, language, and the fine arts.

While studying Arthur, students also study the epics: *Gilgamesh*, the *Iliad*, *Beowulf*, and *Song of Roland*. Using these epics and building on the skills they learned in sixth grade, students produce a newspaper that centers on one of the epics. Unlike their earlier newspaper, the eighth grade paper is done not on computers, but completely by hand. Students discover the beauty of medieval art as they use calligraphy and medieval borders to enhance their papers. Following the epics of antiquity, students are introduced to American folk heroes: Paul Bunyan, Davy Crockett, John Henry, and Pecos Bill. They must then make connections between the two genres, the epic and the folktale. In analyzing literature, students go into complication, foreshadowing, symbolism, tone, and diction. Characterization focuses on archetypes and parallel themes and plots. They imagine how entire story lines would have been altered if just one aspect had been changed. For example, what if Hector had defeated Achilles?

"Lights, camera, action!" Welcome to another facet of eighth grade Humanities. After reading Howard Fast's *April Morning*, students use modern technology to write, produce, film, edit, and star in an original movie that carries the action of *April Morning* for one more day. Students learn about costuming, make up, lighting, set design, and working with a temperamental "star." Students also experiment with using music to create tone, and work on diction as a technique to create characterization. In the film, students must carry on the personalities established in the novel and make appropriate historical allusions for the time period.

HUMANITIES AND GIFTED STUDENTS

As the TEKS for eighth grade social studies includes an introduction to the basics of government, the Humanities classes create their own. In fact, they create an entire civilization. Students imagine that 100 years ago their ancestors crashed on a deserted island. Today, their island nation is a thriving country, part of the United Nations. In their presentations, students must show an association between the geographical location of their island and its climate and natural resources. They also have a written constitution, a flag, a national anthem, a pledge, and a national budget. Students learn about taxation, exchange rates, net outlays, stocks, bonds, trade deficits, and surpluses.

The human tragedy of the Civil War becomes very real as students turn the library into a Civil War museum. Students present displays on every facet of the war, taking on roles of those people who lived during these tumultuous times. You will find doctors, frustrated with the lack of medicines, who will tell you exactly how to treat anything from a gun shot to malaria. Prisoners at Andersonville and Elmira will frighten you with their stories of starvation and torture. Gunsmiths will tell you about the advancement of weaponry and what weapons were carried by what ranks. Women will show you how bandages and quilts were made. You will also experience the music of the time and what people did to entertain themselves. Battle strategies are explained and "what if's" are replayed on three-dimensional replicas of the battlefields at Gettysburg and Bull Run.

As a finale to eighth grade, students write an original reader's theatre that utilizes all they have experienced in history, literature, language, and drama. For some students, the reader's theatre is serious; for others it is comical. Such notables as Thomas Jefferson, Benjamin Franklin, Harriet Tubman, Abraham Lincoln, Robert E. Lee, John Paul Jones, Paul Bunyan, Hercule Poirot, Scarlet O'Hara, Rhett Butler, and King Arthur come to life as students write, block, and present an original script that captures the incredible journey into the imagination that is eighth grade Humanities.

In 1995, the El Paso ISD Humanities program was one of only two gifted and talented programs in Texas recognized as exemplary by the National Association for Gifted Children. William Butler Yeats once said, "Education is not the filling of the pail, but the lighting of a fire." The Humanities program not only ignites the fire, but safeguards it in an environment where an ember can become an eternal flame. The value of the program can be best measured in the words of the students themselves:

"We're not just studying subjects. We're using our imaginations to extend our brains."

"I didn't realize how good the books in the Humanities classes were until I got to high school. These books really are classics."

"I feel challenged and understood in my Humanities class. We're a family."

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Fara Green, Director of Gifted and Talented Education for El Paso ISD, is a former classroom teacher of the gifted and Region XIX Director for TAGT. A long time advocate for gifted, she has written curriculum and continues to provide professional development in gifted education for teachers and administrators.

Terry Peevey, eighth grade Humanities teacher in El Paso ISD, has been teaching twenty-six years, fifteen in gifted education. Peevey spent two weeks in studying the Japanese school system in 1991 and was named Outstanding Teacher of the Humanities in 1999 by the Texas Council for the Humanities.

Linda DeBona teaches seventh and eighth grade Humanities at Nolan Richardson Middle School in El Paso. With 35 years teaching experience, Ms. DeBona has been teaching Humanities since 1985. In 1997 she was named TAGT Outstanding Teacher of Gifted for Region XIX.

Mary Ann Clark, a sixth grade Humanities teacher at Hornedo Middle School in El Paso, has written curriculum for gifted programs and has made presentations at state and national conferences. She was named Outstanding Teacher of the Humanities by the Texas Council for the Humanities and TAGT Outstanding Teacher of the Gifted for Region XIX. Mary Ann was one of the authors of the TAGT middle school publication, Lessons from the Middle: High End Learning for Gifted Students.

What the Research Says About Humanities and Gifted Students

Susan K. Johnsen
Todd Kettler

Humanities is defined as "literature, philosophy, art, etc., as distinguished from the sciences" (*Webster's New Universal Unabridged Dictionary*, 1996). As opposed to courses that focus on single disciplines such as French or Philosophy, a "humanities" course generally integrates more than one of the social sciences or the arts. For example, courses for gifted and talented students may compact two courses into a single semester, such as American History and American Literature, and call it a "humanities" course. Magnet schools such as the Louisiana School for Math, Science, and the Arts may emphasize coursework in these three areas with an emphasis on the integration of knowledge (Lewis, 1993). What does the research say about organizing and integrating curriculum around social science or a "humanities" approach? Is this type of organization more effective than traditional subject-specific courses?

To answer these questions, articles published in *Gifted Child Quarterly*, *Journal for the Education of the Gifted*, *Roeper Review*, and *The Journal of Secondary Gifted Education* during the past ten years were examined. To be included, the article needed to focus on humanities or the integration of more than one of the social sciences in its content or in its results. Because of the limited number of articles, the authors selected empirical studies and descriptions of humanities programs. Using these criteria, 3 empirical studies and 12 descriptions of programs were reviewed.

In this review programs that tend to emphasize humanities or integrated curriculum include the International Baccalaureate (IB), the Integrated Curriculum Model (ICM), and the Waldorf School. IB's curriculum emphasizes the development of the "whole man." It provides study opportunities that integrate social sciences and examine relationships of various disciplines to one another and to life experiences (Poelzer & Feldhusen, 1997; Tookey, 1999/2000). VanTassel-Baska's (1995) ICM also emphasizes interdisciplinary connections to "ensure deep understanding of ideas rather than superficial responding." The program goals of the Waldorf School emphasize a curriculum that is rich with literature, the arts, and creativity (Hutchinson & Hutchinson, 1993). Witham (1997) also provides a review of specialists who recommend interdisciplinary curriculum as one of the criteria for effective curriculum for the gifted. These specialists include Feldhusen, Gallagher, Hansen, Kaplan, Kennedy, Maker, Martinson, Passow, Renzulli, Sato, Sisk, Wickless, and VanTassel-Baska.

Integrated and humanities curriculum appear at all grade levels. Arts-infused programs, which use the arts to deliver instruction in all academic subjects, are found in elementary schools (Daniel, 2000). Middle schools emphasize physical-cultural curriculum (Chance, 1998), and magnet and IB programs are offered at the high school level. Witham (1997) found that public schools are also more likely to combine two subjects, use central themes, and focus on concepts and problems than private schools. In developing an integrated curriculum that incorporates more than one subject area, Troxclair (2000) suggests mapping major concepts. Others suggest the use of problem-centered or problem-based approaches (Dooley, 1997; Gallagher & Stepien, 1996; Stepien, Gallagher, & Workman, 1993). Vars and Rakow (1993) provide an example of an interdisciplinary unit organized around a historical period—the Great Depression. Kolloff (1996) emphasizes the importance of integrating a broad perspective and including various points of view (Kolloff, 1996)

Only two studies examined the effects of integrated approaches. Gallagher and Stepien (1996) found that a problem-based approach in humanities does not affect test scores. Over a longer period of five years, Van Tassel-Baska, Zuo, Avery, and Little (2002) did find that integrated units in language arts produced significant and important gains in both literature and writing based on performance-based assessments. While humanities and interdisciplinary approaches are highly recommended, more research needs to be done to examine the effects of these curricular approaches with gifted and talented students.

Chance, P. L. (1998). Meeting in the middle: Gifted education and middle schools working together. ***Roeper Review, 21*****, 133-138.** The author compares curriculum characteristics of gifted education and middle schools. Middle school models emphasize physical-cultural curriculum that includes fine arts, physical education, practical arts, and cultural studies and analytical curriculum that includes language, mathematics, social studies, and science. Concerns of early adolescence and social issues are addressed through problems. Similarly, gifted education models emphasize integrated curriculum that focus on meaningful social problems. The author concludes that there are more similarities between the two models than differences.

Daniel, R. (2000). Performing and visual arts schools: A guide to characteristics, options, and successes. ***The Journal for Secondary Gifted Education, 12*****, 43-48.** Seven programs are described that provide an arts focus—arts-focused schools, elementary school programs, middle schools of the arts, high schools, magnet school, arts centers. Some elementary schools are arts-infused programs, using the arts to deliver instruction in all academic subjects. Most of the schools provide instruction in all the major arts disciplines.

Dooley, C. (1997). Problem-centered learning experiences: Exploring past, present, and future perspectives. ***Roeper Review, 19*****, 192-195.** A problem-centered learning experience uses five stages of investigation: reacting to the scenario, developing the present perspective, exploring the past perspective, predicting the future perspective, and solving problems, and synthesizing to develop a product. The author suggests that the problem-centered learning model is especially appropriate for curriculum development in the social sciences. It examines "topics, questions, and issues that affect the lives of people and societies in the past, that affect our lives today, and that will continue to affect the lives of future generations" (p. 192).

Gallagher, S. A., & Stepien, W. J. (1996). Content acquisition in problem-based learning: Depth versus breadth in American studies. ***Journal for the Education of the Gifted, 19*****, 257-275.** This study compared high school students' scores on a multiple-choice standardized tested after traditional or experimental instruction in an American studies course. The primary research question was whether a curricular approach emphasizing higher order thinking skills results in lower content acquisition. Subjects in the study were sophomores at a state-supported residential school for students talented in mathematics and science. In total, there were 167 subjects, 93 male and 74 female. There were four instructors teaching a total of eight sections of American studies. The instructor for the experimental group taught two sections using problem-based learning. The problem-based learning approach to American studies used problems at intermittent "post-holes" throughout the year. Approximately 50% of the year were devoted to these problems. The objective was to have students resolve problems using data and perspectives surrounding each case. Comparison classrooms used traditional textbook readings and discussions with little or no problem solving activities integrated into instruction. No significant differences on the post-test between the problem-based learning classes and the more traditional comparison classes were reported. Findings support the claim that teaching a humanities course for depth of understanding with a problem-based approach does not sacrifice retention of facts.

Huchinson, R., & Huchinson, J. (1993). Waldorf education as a program for gifted learners. ***Journal for the Education of the Gifted, 16*****, 400-419.** This article describes the foundations of the Waldorf model of education and ultimately asks the question of whether Waldorf education is an appropriate model for gifted learners. Waldorf education seeks to provide a sensitive and nurturing environment designed to develop the "collective human being." The Waldorf model looks for gifts within the person and seeks to develop those gifts through gradual self-development and autonomy. The curriculum is rich with literature, the arts, and creativity. The authors claim that Waldorf and gifted learners are a good fit because of a study which assessed Waldorf students using the *Scales for Rating Behavioral*

Characteristics in Superior Students developed by Renzulli, Smith, White, Callahan, and Hartman. The basis for their claim is that no significant differences were found when the rating scales were used with a population of identified gifted learners and a random sample of Waldorf students. The authors give a brief discussion of a pilot program with gifted learners in a Waldorf school and conclude that the Waldorf model could serve gifted students well, especially if the program goals include recognizing the importance of the artistic and creative side of the child's development.

Kolloff, P. B. (1996). Gifted girls and the humanities. *The Journal for Secondary Gifted Education, 7*, 486-492. The author suggests that bright students in English and history/social studies classes tend to encounter materials that are about males and a classroom environment that is more supportive of males. Gifted girls find that texts fail to "acknowledge the existence and contributions of women' (p. 487). She offers these suggestions for incorporating female points of view, voices, contributions, and lives into the content of the curriculum: (1) select literature that portray women who are strong, intelligent, and active; (2) use history texts or supplementary materials that include significant women's issues and roles; and (3) discuss issues that transcend gender such as social issues and reform. She also adds ways to modify instructional approaches and classroom structure: (1) provide equal opportunities for girls to enjoy teacher attention and respond to teacher questions; (2) assign bright girls to the same group; (3) include real-life and practical problems; (4) include hands-on learning; (5) use nonsexist language; and (6) provide adult female mentors.

Lewis, G. (1993). Keeping the options open: Curriculum at the Louisiana School for Math, Science, and the Arts. *Journal for the Education of the Gifted, 16*, 387-399. The Louisiana School for Math, Science, and the Arts is a residential school for 11th and 12th grade students. Students are selected for academic and/or artistic talent from throughout the state of Louisiana. All students at the school complete the core curriculum, which provides breadth in a classical liberal arts curriculum. In addition, students also choose a focus, or specialty, area as an extension of the core curriculum. The three focus areas available are math/science, humanities, and the arts. Students who choose the humanities focus must take a full year of any art discipline and two years of study in an area of the humanities. The humanities at the school include advanced foreign language, psychology, sociology, archeology, military history, southern history, and literature. The article also includes results from a student survey in which they were asked to rate the importance of courses required beyond the core curriculum. Students ranked the math/science courses as the most important, and the arts courses as the next most important. The survey revealed that the students found the humanities courses less important than the other two focus areas.

Poelzer, G. H., & Feldhusen, J. F. (1997). The international baccalaureate: A program for gifted secondary students. *Roeper Review, 19*, 168-171. This article describes the history and characteristics of the International Baccalaureate program. The authors describe the program as offering more breadth and depth, emphasizing the development of the "whole man." The Study of Man in Society integrates history, geography, economics, philosophy, psychology, and social anthropology and the Theory of Knowledge focuses on critical thinking across mathematics, aesthetics, morals, and so on. The authors conclude that the IB program is appropriate for gifted students.

Stepien, W. J., Gallagher, S. A., & Workman, D. (1993). Problem-based learning for traditional and interdisciplinary classrooms. *Journal for the Education of the Gifted, 16*, 338-357. This article describes the use of problem-based learning at the Illinois Mathematics and Science Academy. Problem-based learning is used in two interdisciplinary courses. Science, society, and the future is a senior-level course which is team taught from an interdisciplinary perspective centered on problematic topics. Topic include "possible health effects of extremely low frequency radiation," "biomedical issues in life, death, and personhood," and "designing health care systems for the 21st century." American studies is a sophomore level course which combines content from history and other social sciences to explore major themes in the evolution of American society.

Tookey, M. E. (1999/2000). The international baccalaureate. *The Journal for Secondary Gifted Education, 11*, 52-66. This article describes the International Baccalaureate program, its beginnings and components. The program includes a two-year interdisciplinary course called Theory of Knowledge, in which students explore the relationships of the various disciplines to one another and to life experiences. Another course, The Study of Individuals and Societies, incorporates the social sciences and humanities. Students study the "systematic and critical study of human environments on human experience and behavior, and on the history and development of … social and cultural institutions" (p. 56). The authors suggest that students also learn to evaluate the assumptions, theories, concepts, and arguments of the particular social science, using the methodology of the field by conducting their own investigations.

Troxclair, D. A. (2000). Differentiating instruction for gifted students in regular education social studies classes. *Roeper Review, 22*, 195-198. The author describes ways that social studies teachers differentiate instruction for gifted students: curriculum compacting, conceptual thematic units, questioning strategies and interest development centers, and independent study and mentorships. The author provides a figure of webbing major concepts from art, language arts, affective, business, religion, music and history around the theme of "symbols."

VanTassel-Baska, J. (1995). The development of talent through curriculum. *Roeper Review, 18*, 98-102. The dimensions of the integrated curriculum model (ICM) are presented in this article—advanced content, process product, and issue/themes. The author suggests that the use of issues and themes "ensures deep understanding of ideas rather than superficial responding" (p. 99). The curriculum emphasizes interdisciplinary connections. Students may study the concept of change in language arts, which is relevant to literature, writing, and language as well as to mathematics, art, and music. The author concludes by offering practitioners concrete units of study to implement in classrooms.

VanTassel-Baska, J., Zuo, L., Avery, L. D., & Little, C. A. (2002). A curriculum study of gifted-student learning in the language arts. *Gifted Child Quarterly, 46*, 33-44. This study was designed to measure the effects of a standards-based language arts curriculum with gifted learners at primary, intermediate, and middle school levels. The Integrated Curriculum Model (ICM) seeks to enhance learning through an approach to learning which integrates multiple aspects of language study, primarily literature and writing. The ICM includes the following: using advanced literature, embedding a reasoning model into the teaching of language arts, requiring a high-quality student product, and teaching around major concepts. In addition each unit emphasizes interdisciplinary connections and involves students in research. The sample included 2,189 identified gifted learners in grades 2 through 8 representing 18 school districts in 10 states. Students were administered pre- and post-tests measuring literary analysis and writing skills. Students were assigned to experimental and comparison groups with the experimental group receiving the standards-based integrated curriculum. Data on treatment effects were gathered over a five-year period and suggested that the integrated units produced significant and important gains in both literature and writing based on performance-based assessments. The treatment was equally effective with economically disadvantaged as well as economically advantaged students.

Vars, G. F., & Rakow, S. R. (1993). Making connections: Integrative curriculum and the gifted student. *Roeper Review, 16*, 48-53. The authors believe that interdisciplinary curriculum can help gifted students "see the interrelationships and interdependence of knowledge structures" (p. 49). Other benefits of interdisciplinary curriculum include exploration of epistemological issues, a focus on high level thinking skills, and a stimulus for independent study and programs such as Creative Problem Solving. Specific ways to correlate subject areas in the humanities are described. For example, in studying the Great Depression in social studies, students might read *No Promises in the Wind*, participate in a simulated Stock Market, and write-up oral histories of family members. The authors suggest that integrated curriculum increases the potential for developing creativity and creative expression.

Witham, J. H. (1997). Public or private schools: A dilemma for gifted students? *Roeper Review, 19*, 137-141. After reviewing 24 school programs, the author noted that public schools tend to use critical thinking skills more frequently while private schools tend to use acceleration more frequently. While six curriculum writers advocate a curriculum that is based on central themes, relationships, and interdisciplinary, no significant implementation differences were found between public and private schools. Frequency results did indicate a high rate for both types of schools on combining two subjects (public=94.4%, private=85.7%), central themes (public=98.1%, private=85.7%), and concepts/themes/problem (public=98%, private=91.2%).

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TEXAS ASSOCIATION FOR THE GIFTED AND TALENTED

MISSION STATEMENT

TO PROMOTE AWARENESS OF THE UNIQUE SOCIAL, EMOTIONAL, AND INTELLECTUAL NEEDS OF GIFTED AND TALENTED STUDENTS AND TO IMPACT THE DEVELOPMENT OF APPROPRIATE SERVICES TO MEET THESE NEEDS.

TAGT EXECUTIVE BOARD LONG RANGE GOALS

- Advocate appropriate services and accountability standards for all gifted and talented students.
- Support quality professional development for educators of gifted and talented students.
- Provide current information, research, and training about gifted and talented learners and the field of gifted education to the TAGT membership, parents of the gifted, and general public.
- Increase and diversify membership.
- Increase and diversify revenue sources.

Adopted by the TAGT Executive Board: 2.3.02

Book Reviews

Teens in Turmoil: A path to Change for Parents, Adolescents, and Their Families. By Dr. Carol Maxym and Leslie B York. Published by Viking/Penguin

Teens in Turmoil: A Path to Change for Parents, Adolescents, and Their Families is a comprehensive book that identifies the issues and supplies options to guide parents in assessing situations, developing a plan of action and making changes necessary to get teens and families back on track. The authors have unique backgrounds which gives them personal insight into teen problems. Both had personal experiences with teens at risk. They use case studies which help us identify and change who takes control of the family. This is an excellent resource for educators and parents of children of all ages. It provides us with hope, courage, and positive viewpoint in facing difficult situations, and gives us the courage to begin the process of change.

—review by Dr. Mary Seay

Jury Trials in the Classroom: Six Simulations Turn the Classroom into a Courtroom. by Betty See. Published by Dandy Lion Publications

Jury Trials in the Classroom taps into the middle school student's natural interest in questions of guilt or innocence and courtroom drama. The author provides detailed background information as well as a number of trials for classroom use.

The first section, "Building a Foundation," defines types of courts and the structure of the U.S. court system. The second section explains how a mock trial may be carried out. Explanations of the principal participants, courtroom procedures, and a diagram for setting up a courtroom are followed by a step-by-step explanation of the mock trial format.

In the third section, "Trials for Classroom Use," is divided between criminal and civil trials. The criminal trials include Hansel and Gretel as well as John Wilkes Booth. There are three civil trials, including Lord Capulet v. Friar Laurence. In each of the classroom trials, the text provides background information, affidavits from witnesses, suggestion for formulating questions for both direct and cross examination, and a jury ballot.

The information in this book is comprehensive and the range of sample trials (with fictional as well as historical characters) is a strong point. Teachers of upper elementary and high school may find parts of this book as useful as the intended audience of middle school teachers.

THE LAST WORD

Reading on the Tractor: Preparing for the Journey

Michael W. Cannon

It seemed like such a good idea at the time, he told me later. My friend Darrell and I had often complained to each other about the mind-numbing boredom of driving tractors on hot summer afternoons and had tried a variety of ways to escape the tedium, but nothing really worked. And then one day he decided that there was no reason he couldn't drive the tractor down the long straight rows and read a book at the same time. (We were secret, maniacal readers - not that our parents didn't want us to read; they just didn't want us reading all the time. So we would always have a book in our pocket or stashed somewhere.)

I've forgotten what book he took that day, but I remember the result. Engrossed in his reading, he didn't pay much attention to his steering and by the time he looked back, he had plowed under eight rows of cotton, eight rows wide and almost half a mile long. It took him the rest of the afternoon and most of the next day to uncover the plants by hand. He wasn't really sorry, he said, because it did give him a chance to think about what he had read the day before.

This story became one of my father's favorite cautionary tales, an example of what can happen when someone keeps their nose in a book and doesn't pay attention to the work that needs doing. But he didn't get it: it was the books that kept us going, the stories and ideas that fed the work of our minds.

As educators, we too sometimes lose sight of those things that feed the intellect. We get so involved in teaching for future careers or the TEKS, that we forget that the without the humanities — those poems, novels, pieces of music, works of art, and ideas in philosophy — we may have educated minds, but minds without roots. For ideas must, as Jacques Barzun notes, have roots in the imagination or they will be "nothing more than attractive toys, especially when they shine with the authority of science or social science" (112).

Universal concepts including truth, justice, and beauty, planted in youth and nurtured with the rich variety of literature and the arts, will bear fruit that will sustain a person throughout life. We must have these fruits, these concepts, firmly in mind if we are to live lives open to the kind of intellectual adventure that makes life meaningful.

The Egyptian poet, C. P. Cavafy, addresses this idea in his poem, "Ithaka." Speaking to Odysseus as he leaves Troy for his home in Ithaka, the poet notes that of all the adventures that lay ahead:

> —you won't encounter them
> unless you bring them along inside your soul,
> unless your soul sets them up in front of you. (36)

The question for educators and parents is this: Are we providing for our students and children the rich fruits of literature and the arts that will enable them, like Odysseus, to encounter the wonders that lie ahead in their lives?

Sometimes a little cotton may get plowed under along the way, but the journey is worth it.

Barzun, J. (1974). *The use and abuse of art.* Princeton: Princeton University Press.

Cavafy, C.P. (1992). *Collected Poems.* (Trans. E. Keeley and P. Sherrard). Princeton: Princeton University Press.

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TEXAS ASSOCIATION FOR THE GIFTED AND TALENTED
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Volume XXII Issue 3

25TH ANNIVERSARY
SILVER LEGACY: SHINING ON THE FUTURE FOR GIFTED YOUTH

Chemistry Olympians' Academic Development and Productivity

Marilyn Ann Verna
St. Francis College

James Reed Campbell
St. John's University

Annie Xuemei Feng
College of William and Mary

Industrialized nations depend upon talented individuals in the science and technical fields for economic growth. In order to achieve this goal the educational systems must identify these talented students at an early age and give them the opportunity to expand their creative energies through specialized school programs. High schools offer advanced "college level" courses in Organic Chemistry, Inorganic Chemistry, and Biochemistry for this cohort of students. However, Welch, Harris and Anderson (1984) reported that only 0.7% of students enroll in such courses. In 1990, The College Board indicated that the number of advanced placement chemistry exams numbered 19,765, which was lower than the biology exams but higher than the physics exams. In the United States, the National Science Foundation (NSF) keeps tracking data on students who score in the top 10% in school (Campbell & Wu, 1996). Longitudinal data collected during 1985-86 indicated that during grades 6-10 students' attitudes toward science decreased, yet the males had better attitudes than the females. Motivation also declined, but in this case the females were more motivated. The home, the school environment, and individual influences contribute to involvement in science courses and the student's interest in science. Students who in an early grade take advanced science courses are more likely to embark upon science research projects and compete in science fairs and contests (Lynch, 1990). The students with the most highly

(see VERNA, CAMPBELL & FENG , page 15)

SUMMER 2002

MATH AND SCIENCE FOR GIFTED STUDENTS

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FROM THE PRESIDENT

James Collett

One summer at the Texas Archeological Society Field School, I earned the "honor" of excavating a meter square through the center of a prehistoric burned rock midden. Archeologists use the term "midden" as a euphemistic description for "trash dump." I thus held the unenviable job of digging through a centuries-old collection of fist-sized chunks of limestone, packed together within a conglomerate of earth, somewhat greasy ashes, bits of bone, diverse sharp flakes and fragments of flint, snail shells, and whatever insects and small rodents had constructed homes in this appetizing concretion. I did this for no pay (in fact, I paid for the privilege), my only reward coming from my fascination with the lives of these ancient Texans.

This midden comprised an important segment of the artifactual record of the Native Americans who once dwelt along the Sabinal River near present-day Utopia, a small ranching community in south central Texas. Several meters thick, the midden is situated near an old bend of the Sabinal. Over the centuries, silt completely covered the site. The archeological crew to which I belonged established a line of squares across the top of the midden. Each block measured one meter square and was excavated in 10 centimeter slices. Anything encountered in that segment of earth was recorded in some manner—weighed, sifted, photographed, sketched, and/or counted.

Early every morning, our crew began another day of digging our way down using six-inch trowels, hand-held brooms, small scoops and pails. For six hours each day, throughout a sultry week in June, I painstakingly (not to mention painfully by day's end) pried apart this disarray, collecting the rocks into buckets for weighing and sending all the loose matter (scientific word: "debitage") to platforms with quarter-inch screens for sifting. The experience could best be likened to working in a coal mine. At day's end, I emerged from my small plot of trash, face blackened with the sooty grit and dirt, back and knees stiff from working in cramped quarters. All I lacked to complete the picture was the miner's lamp!

As an archeological team, we searched each bit of

(see COLLETT, page 22)

Tempo
Volume XXII Issue 3 Summer 2002

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TAGT *Tempo* is the official journal of the Texas Association for the Gifted and Talented. It is published four times a year in January, April, July, and October. The subscription is a benefit of Full membership.

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Mathematics for the Young Gifted:

Making Sure Our Elementary GT Options Add Up

Michael Sayler

As we address the instructional needs of young mathematically talented children we need to be aware of the diversity within this population. Not all mathematically talented children are alike and consequently appropriate instruction for them varies. The development of a child's full math potential is not guaranteed. Having high levels of mathematical aptitude is a necessary prerequisite to high-level mathematical performances, but just having these abilities does not guarantee they will spontaneously develop into mathematical talent in a particular child.

The complexity of the aptitude and performance characteristics of mathematically talented students suggests that a single solution will not be sufficient and that multiple program options are required to appropriately address the different levels of need within those who are mathematically able. Many schools recognize this need; they see the children in their gifted programs whose mathematical potentials are not currently addressed well. Teachers also see children who are not in the gifted program, but have strong mathematics abilities, and who also need a similar challenge. The problem for many schools and teachers is less in recognizing that the needs of mathematically gifted and talented children exist, but more in knowing what to do about their needs. This is especially true as teachers and administrators become aware of the levels of potential and levels of current performance among the mathematically gifted and talented.

Fortunately, schools can quickly address the needs of most of these gifted and talented children with simple classroom or special classes modifications. This kind of mathematics enrichment is the main topic of this article. Additionally, we must not forget the needs of the more highly talented who require more accelerated and advanced content, pacing, and opportunities. Sometimes this mean developing individual instructional plans for these students. In other districts or schools, clustering these children in one section is possible. The creation of special math classes with special curriculums or the use of existing curriculum but in cross-grade grouping for mathematics instruction is possible. Schools can place the most talented students in math classes several years in advance of their age peers. The modifications made and the options provided to the students is based on their particular mathematical needs. The greater the needs, the more radically the interventions they receive must vary from the normal mathematics plan.

Schools should develop a philosophy about the nature and classroom management practices of the teachers who will work with students in these options. Teachers should use appropriate classroom practices which allow the students to learn as much as possible about mathematics (more than just the topics in arithmetic). To accomplish this, teachers must structure their math classes to accommodate individual rates of mastery through techniques such as diagnostic-prescriptive teaching, flexible scheduling, accelerative options, and homogeneous grouping arrangements. The teachers also need a firm foundation in the content of mathematics. This strong teacher knowledge base may come from pre-service mathematics training, staff development training, college-level mathematics coursework, and ongoing support from the district.

The ins and outs of diagnostic mathematics instruction were addressed in an earlier *Tempo* article (Sayler, 1995). The current article addresses specific enrichment possibilities for the young mathematically talented. These approaches are appropriate for clusters of mathematically talented in regular classrooms, for special classes of mathematically talented, or for activities within pullout programs for the gifted and talented. There are broad categories we can consider as we think about enriching the elementary mathematics or gifted curriculums. They include topics such as: mathematical problem solving, geometric reasoning and spatial visualization, measurement, facts and computation, arithmetic and algebraic concepts, mathematical applications, estimation and mental math, numeration, and probability and statistics.

Mathematical Problem Solving

The following is a multi-step process for mathematical problem solving from the Hungarian-American mathematician George Pólya (1973). Pólya saw mathematical problem solving as a practical art, like swimming, skiing, or playing the piano. He believed students learned problem solving only by solving challenging problems. Just as children with lots of musical potential must spend time at a piano being guided and challenged if they are to become good musicians, our mathematically talented students must explore high-level, challenging problems if they are to become good mathematicians.

Included here are Pólya's steps and some sample questions that teachers can ask students to assist them through the problem solving process. We can help gifted students become more metacognitive about their problem solving by encouraging them to ask these questions in their own minds. Mathematically talented students tend to make intuitive leaps and the steps below may not necessarily be performed in sequence. Students naturally will explore and move in and out of each of the steps as they discuss, test out, verify, and continue to investigate. This reminds us how important discussion is to the development of deep problem solving knowledge. In classes for the gifted, the discussion about how the answers were obtained, why one approach might be more useful than another, the multiplicity of possible approaches, and the aesthetic beauty of a elegant or simple solution is as important as getting the right answer.

Understanding the Problem (Exploring):
What is the activity asking you to do?
Explain the problem in your own words.
Making A Plan (Suggesting strategies):
How might you try to solve this problem?
What materials might help you solve this investigation?
What other information do you need?
Where might you get it?
What do you think an answer might me?
Carrying Out the Plan (Testing out the strategy):
What have you tried so far?
What will you do next?
How will you organize all the information?
What did work? What did not work?
Looking Back (Checking back and revising):
How can you determine if your answers are appropriate?
How do you know your solution is reasonable?
Communicate the Solution (Analyzing results and communicating):
What did you discover?
What is the most effective way to communicate how you arrived at the solution?

Here are two good problem-solving stories for young mathematically talented students. Answers can be found at the end of the article. Try these yourself and use Pólya's steps and questions to help you solve them.

- A farmer had a small yard where she kept chickens and pigs. One morning while feeding her livestock, she made an interesting discovery. The farmer noticed her animals had the same number of heads and wings as they did feet. How many chickens and how many pigs did the farmer have?
- The Texas Association for the Gifted and Talented has decided to endow a new zoo. It was to be the best zoo in Texas. They brought in exotic animals from all over the world. The zoo was about finished and the workers had installed 1000 cages and placed the animals into them. The cages that were used had a unique feature; when their locks were turned one time the cage was open, when it was turned again it was locked. Continued turning of the lock either opened or locked the cage door. Late one afternoon, a crate arrived from Tasmania. There was not time to prepare a cage that day so the workmen left. In the cage was a Tasmanian Devil and during the night he began to spin and broke out of the box. Being a Tasmanian Devil, he was a bit mischievous. He first went and turned every one of those 1000 cage locks so that 1000 cages were unlocked. Being a Tasmanian Devil though, he could not stop there. The Devil returned to the first cage and this time turned every other lock (cage 2, 4, 6, 8, . . . He then returned and turned every third lock (cages 3, 6, 9, . . . 999), then every fourth lock (4, 8, 12, . . . 1000). He repeated this pattern 1000 times. When he was done, how many cages were open? Which ones?

Geometric Reasoning and Spatial Visualization

Forty years ago, mathematics teachers Pierre and Dieke van Heile put forth a developmental theory of geometric reasoning based on their teaching and research (Van Heile,

(see SAYLER, page 9)

Do the Math

5 + 1 + 5 + 3 + 4 + 4 + 4 + 5 + 2 = too many.

Colleen H. Elam

Recently, the Houston Chronicle ran an article about the impending shortage of surgeons and the consequent implications for public health. It was noted that more students are avoiding surgery and opting for specialties that require fewer years of training. This drop in applications to surgery residencies is a trend that began in the early 1980's and has since escalated. Now there are more general surgery positions open than there are medical graduates to fill them. Understandably, there is concern that this shortage could create problems for patients.

Yesterday, I stood in the registrar's office of Southwestern Medical School in Dallas. A conversation between my daughter and two other dedicated, enthusiastic, third year medical students personalized the surgeon shortage story. The students were discussing their rotations. One student expounded on how she loved both pediatrics and surgery so much that she was certain pediatric surgery was her calling in life. What could be better than healing children in serious life threatening conditions? So she investigated specializing in pediatric surgery. That's when she learned that pediatric surgery is a two-year fellowship after the five-year surgery residency. Add a year of research and that would mean eight more years *after* medical school before she would be able to practice. 5 years before school + 1 year of kindergarten + 5 years of elementary + 3 years of middle school + 4 years of high school + 4 years of college + 4 years of medical school + 5 years of residency + 1 year of research + 2 years of subspecialty fellowship adds up to too many years of life and too many years of school. She decided to opt for pediatrics instead. Thus after graduation from medical school, she would have only three years of residency before she could practice and begin her life.

Are you thinking what I'm thinking? This is evidence of our need for curriculum compacting, for acceleration, and for individualized education. Here's another story from my memory bank.

The Public Broadcasting System has run a Nova series, "Survivor M.D.," that followed seven students from their entrance to Harvard Medical School in 1987 through the next fourteen years of med school, residency, and practice. The series reconnects with the seven periodically to document their circumstances and their comments. Many of the scenes were memorably moving, but one in particular haunts me. In the 2001 interviews, one of the seven remarked, "I would like to marry and have children some day," then she paused, cocking her head and listening to a sudden commotion outside. She stood, moved quickly to open the door, and entered the hospital corridor as she finished her sentence, "...but there just hasn't been time so far." The camera continued to film as she consoled an uncooperative, wrestling patient brought in for substance abuse. The patient, hooked to an IV and being wheeled rapidly down the corridor on a gurney by about five medics, was asserting that she had to "go number two." The female practitioner replied, "Go ahead, I'll clean you up," as she accompanied the entourage down the corridor. The female practitioner had finished her residency and was beginning her practice. She was 38. She was not a surgeon. Time is a factor on many fronts.

Medical schools are responding to the impending shortage of surgeons by attempting to reduce the hours on duty and by trying to compress the requirements into fewer hours. Still there is so much material to master. We've all heard the horror stories of the long, grueling hours required of medical students. The four years of medical school and the subsequent years of residency are demanding intellectually, physically, and psychologically. The hours are long, the expectations are high, the pace is demanding, and rightly so. All of us want our doctors to be knowledgeable, experienced, dedicated, selfless, and brilliant, not to mention available, reasonably priced, and infallible. Is med school really the best place to compact curriculum?

It is time to individualize early education to allow children to proceed at their own pace. Why should a child who has read hundreds of chapter books, sit through a year of kindergarten "learning" letters and colors and shapes? Because she's five? Because we want to give the rest of the children the time and opportunity to catch up? Why should any child who already knows the material be required to sit quietly through the hours and the days? Those hours and days add up to semesters and years. That time can be crucial in later life. By seriously implementing pre-testing, flexible scheduling, independent learning, curriculum compacting, acceleration, and the full range of educational options, we can allow each child to proceed at an individualized pace.

In Texas we can be proud of the progress we have made in gifted education. We have worked hard, and consequently we have many excellent programs. One stellar acceleration option for high school students focused in math and science is the Texas Academy of Mathematics and Science. TAMS was set up by the Texas Legislature as a resident program on the campus of the University of North Texas to allow students to complete the last two years of high school and the first two years of college concurrently. The two years saved is a major draw for students. But TAMS can only accept about 200 Texas students each year. We need to establish more acceleration options on the home campuses. We can shave time for students long before they reach high school. Yes, we've come a long way, but we still have a long way to go. It is time to look at the whole picture from Kindergarten through M.D., Ph. D. and beyond.

Frequently, the question is raised why so many gifted students want to be doctors. Perhaps it is difficult for most of us to understand the intensity and the self-motivation of these students, their drive to make a positive difference in this world. Let's give them the time they need to make a difference.

The American Medical Association web site lists 126 medical specialties and subspecialties. Every one requires years of training after medical school. Not only do we want doctors, we also want medical researchers, physicists, engineers, mathematicians, lawyers, and numerous other specialists, all of whom must complete years of study. Furthermore, we want all of these specialists to be able to have children and families of their own.

Each child is different. Each child has individual abilities and needs. By meeting their educational needs, we enable them to fill the needs of the future. That future impacts us all.

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Bringing Up Girls in Science: The First Year

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Bringing Up Girls in Science (BUGS) is a National Science Foundation funded demonstration project in the Department of Technology and Cognition at the University of North Texas (UNT). The goal of this project is to provide educational experiences in an outdoor learning lab for girls in grades four and five that will increase girls' interest, participation, self-concept, knowledge, and achievement in the environmental sciences and technology. During Year One, thirty, 4th and 5th grade girls (BUGS participants) will attend an after school outdoor science lab at Sam Houston Elementary in the Denton Independent School District in Denton, TX. Participants for the project will be recruited from across the district. BUGS participants will be mentored by female high school students enrolled in the Texas Academy for Mathematics and Science (TAMS). TAMS provides opportunities for talented students in mathematics and science to complete the first two years of college while earning a high school diploma. Each TAMS student will be matched with a BUGS participant. TAMS students will also serve as instructional aides for the outdoor lab. The TAMS students will assist the BUGS participants in developing a science fair project and a hands-on demonstration of a concept learned in the lab that will be presented to parents and future BUGS participants. A member of the American Association of University Women (AAUW) will serve as a mentor for both the TAMS student and BUGS participant. The AAUW mentor will provide information on career and educational opportunities in science. A two-week summer experience at the University of North Texas' Environmental Education Center, Elm Fork, will be provided for the academic year participants. TAMS students will serve as educational aides while graduate students in environmental science provide instruction.

BUGS participants and mentors will be joined the second and third year of the project by girls in special populations at distance sites through the use of two-way audio-visual desktop conferencing tools, a project WEB site, chat rooms, and computer "pen-pals". For the second and third year, special populations joining the project will include: (1) students with emotional and behavioral problems attending Rose Street Day Program and Therapeutic School in Wichita Falls, TX; (2) a school district which serves large numbers of Hispanic and Native American students in Bernalillo, New Mexico; and (3) students from a rural school district in Decatur, Texas. BUGS participants at distance sites will be able to use "multimedia CD-ROMS" developed from activities that were videotaped during Year One to increase their opportunities to participate in the "outdoor science lab" experience. The third year of the project extends implementing change for the future with an additional group of pre-service teachers at the university level. During a certification-required three hour course on teaching diverse students, pre-service teachers will receive instruction on effective instructional strategies for motivating highly capable girls into pursuing an interest in technology and science. This instruction will be supported by a CD depicting effective practices for including girls in science activities. The CD will cover research-based findings as well as provide real life examples of effective inclusion strategies. Pre-service teachers will have the opportunity to observe and participate in the outdoor learning laboratory.

Family involvement will be ongoing throughout the project. Career awareness and educational opportunities materials will be housed by a local public library for the parents of BUGS participants. Three parent meetings per year will be provided to "showcase" student work and provide educational and career information.

The Elm Fork Education Center, the public education branch of UNT's Environmental Programs, will develop environmental science learning kits for the project. These learning kits will be enhanced by technology expertise from the Texas Center for Educational Technology (TCET). TCET will assist with the development and dissemination of technology environmental learning kits throughout the United States. In addition, kits will be available in Spanish. TCET has the facilities to distribute learning kits internationally impacting girls not just in the United States, but also girls in Spanish speaking countries. The project intends to measure changes in science achievement, environmental awareness, attitudes towards science and academic self-esteem.

Through collection and analysis of the project data, the effectiveness of mentoring combined with environmental and technology education grounded in effective teaching practices for gender equity will be determined. National dissemination of learning materials developed by the project will provide electronic fieldtrips in environmental sciences for diverse and/or special needs populations. The results of this project will be incorporated by the University of North Texas into the pre-service teacher education program.

BACKGROUND

An extensive review of the literature on female perception of science and technology provides the rationale for the current project.

Facilitating Gender Equity

The problem of attracting females into science careers has been documented for many years (Baker & Leary, 1995). Subrahmanyan and Bozonie (1996) argue that crucial areas of science and technology education, particularly for girls, should occur prior to high school. Programs that address gender equity in science at the high school level are often "too little, too late." Science programs for young female students should address the very specific needs of bright and capable female students. Programs should not strive to be equal to programs for male students, but should be equitable, emphasizing hands-on, real-life laboratory experiences while incorporating verbal/language arts components where many females excel. Cooperative learning and mentoring programs are effective methods for incorporating a verbal/language arts component into science. It appears most important to encourage at an early age. Subrahmanyan and Bozonie document the need to match curriculum to learning styles. To facilitate gender equity in science, it is critical to identify programs that provide learner centered materials at an early age.

The Need for Early Intervention

Stoking (1993) studied the academic attitude of academically talented girls and boys in grade seven participating in the Duke University Talent Identification Program. Student participants rated school subjects and college majors in terms of how much they liked or disliked each subject. Student participants indicated subject preferences according to a forced choice Likert scale. Girls consistently rated language arts courses as their favorite courses while boys rated mathematics and science as their favorite courses. It appears that academically talented girls already have determined specific subject preferences for language arts by the seventh grade. Any plan seeking to increase academically talented girls' perceptions of science and technology should most likely focus on demonstrating the positive aspects of these subjects in the early grades, prior to grade seven. It would also seem important to use teaching strategies which have a strong language arts/verbal component to meet the learning style preferences of female students.

Oakes (1990) further reiterated the importance of early intervention for increasing girls' choices for a science career with research that indicates that the number of students considering careers in the field of science increases very little after ninth grade.

Science Participation of Gifted Females

Historically, gifted females have been under-represented in upper level science courses and science careers. As early as 1974, Hansen and Neujahr studied attitudes towards science among intellectually gifted students. Even in a population chosen for interest in science and high aptitude for the subject, gifted females showed less positive attitudes toward science and less interest in pursuing a career in science. Matyas and Dix (1992) studied a group of high school seniors who scored above the 90th percentile on the mathematics portion of the Scholastic Aptitude Test, Women were only two-thirds as likely as men to indicate plans of pursuing a career in science. Harry and Beall (1984) found that elementary school gifted girls had the least positive attitudes toward science when compared to gifted boys, non-gifted boys,

(see TYLER-WOOD, CEREIJO, and PEMBERTON, page 13)

(from SAYLER, page 4)

1984). They observed that in learning geometry, students seemed to progress through a sequence of five reasoning levels, from holistic thinking to analytical thinking to rigorous mathematical deduction. Mathematically gifted children pass through the same steps, but at a faster pace or younger age. The van Heiles described the five levels of reasoning in the following way.

LEVEL 0 (Recognition)

A child who is reasoning a level 0 recognizes certain shapes wholistically without paying attention to their component parts. For example a rectangle may be recognized because it looks "like a door" and not because it has four straight sides and four right angles.

LEVEL 1 (Analysis)

At this level, the child focuses analytically on the component parts of a figure, such as its sides and angles. For example a child who is reasoning analytically would say that a square has four "equal" sides and four "square" corners. The child also knows that turning a square on the page does not affect its "squareness." A child thinking analytically might not believe that a figure can belong to several general classes and have several names. For example a square is also a rectangle since a rectangle has 4 sides and 4 square corners, but a child reasoning analytically may object, thinking that square and rectangle are entirely separate types even though they share many attributes.

LEVEL 2 (Relationships)

There are two general types of thinking at this level. First, a child understands abstract relationships among figures. For example a rhombus is a 4-sided figure with equal sides and a rectangle is a 4-sided figure with square corners. A child who is reasoning at level 2 realizes that a square is both a rhombus and a rectangle since a square has 4 equal sides and 4 square corners. Second, at level 2 a child can use deduction to justify observations made at level 1.

LEVEL 3 (Deduction)

Reasoning at this level includes the study of geometry as a formal mathematical system. A child who reasons at level 3 understands the notions of mathematical postulates and theorems and can write formal proofs of theorems.

LEVEL 4 (Axiomatic)

The study of geometry at level 4 is highly abstract and does not necessarily involve concrete or pictorial models. At this level the postulates or axioms themselves become the object of intense rigorous scrutiny. This level is usually the level of study in geometry courses in college.

Allowing mathematically talented children to do geometric reasoning activities early is an excellent preparation for their eventual study and success in levels 3 and 4. In younger grades consider adding tangrams, pentominos, and books and materials sometimes called "experimental" or "hands-on" geometry and games to help facilitate this growth.

One type of tangram challenge especially good for the gifted is tangram paradoxes. A paradox is a self-contradicting statement or observation. H.E. Dudeney, a turn-of-the-century English puzzler, wrote about one in his book *Amusements in Mathematics* (reprinted, 1958). He shows a picture of two similar men made from tangrams. His two individuals appear identical in all respects except that one has a foot and the other has not. Yet the creation of each gentleman requires all seven of the tangram pieces. Where, then does the second gentleman get his foot? The first challenge for the mathematically talented is to create each person from a tangram set; the second gifted challenge is to explain the apparent paradox. This discussion and analysis is what makes this and other mathematics enrichment for the gifted more appropriate.

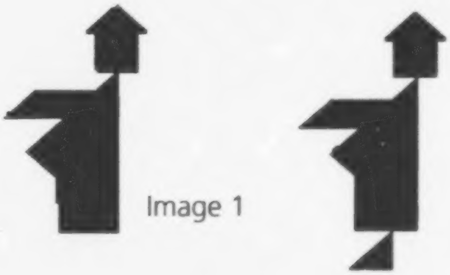


Image 1

Facts and Computations

The mathematically talented often know their facts well and are computationally proficient. When they don't know the facts or algorithms before instruction begins, they learn them quickly. Consequently, these mathematically talented students benefit from various diagnostic prescriptive (D->P) techniques. These D->P techniques include pretesting, making modifications in daily assignments, more independent progress and learning. A good source of very practical techniques of this type is Susan Winebrenner's book (2001), *Teaching Gifted Kids in the Regular Classroom*, especially her strategies: Most Difficult First, Pretests for Volunteers, and Compacting Learning Contracts. For the more highly mathematically talented, mentoring is effective; details on how to carry out a mentoring program are in the earlier article in *Tempo* (1995) and in the book *Jane and Johnny Love Math* (Lupkowski and Assouline, 1992).

An enrichment activity that the gifted enjoy because of its computational speed and the opportunity for fun competition is a card game called "99." The object of game is to do quick addition and subtraction of card face values, but NOT produce a total greater than 99 during your turn. If a player's total exceeds 99, he or she is out; it is OK to have a total of exactly 99, just not to go over.

Cards have specific values. Most cards count their face value (e.g., 4 =4, 7 = 7). Other cards have special values, ones often used in card games: ace are worth one or eleven points (player's choice), the kings, queens, and jacks are all worth ten points. A few cards have unique values: the ten counts as a minus ten. Nine adds zero to the total, and eight also equals zero, but playing it reverses the order of play in the game. Whenever the two of spades is played it sets the current total to 99 regardless of the previous total.

The game uses a regular deck of cards. The deck is shuffled and each player is dealt three cards. The remaining cards are reserved in a face-down pile in the center of the table. Players pick up their three cards and hold them in their hand. The player to the left of the dealer begins play. The first player lays down one card and audibly gives its value. The first player must draw one card from the reserved pile before the next player lays a card and gives the sum. If the first player fails to do this, he forfeits the replacement card and must continue with two or even one card in his hand. If he should play the last card but forget to draw a replacement, he is out.

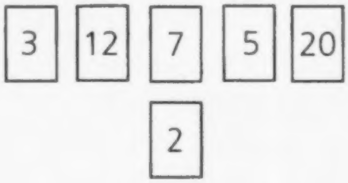
The next player then lays one of his or her cards and adds its value to the previous total. Play continues this way until someone's total is more than 99. That player is then out, the total reverts to the total before his play and the next person continues. Play progresses until one player is left. That player is the winner.

Players learn to add quickly so they can play and add their next card before the previous player draws a replacement card. This puts the player who missed his draw at a significant disadvantage later in the game. Players also learn to hang onto to their eights, nines, tens, and aces as these cards allow them to play when the score reaches 99 or close to it.

Arithmetic and Algebraic Concepts

Krypto is a card game that teachers can purchase commercially or one they can make in their classrooms with homemade cards numbered 1-25. When making their own cards, teachers create three cards each for the numbers one through ten. They make two cards each of the numbers eleven through seventeen, and one card each for eighteen through 25.

A hand of five cards is dealt, then a sixth card that serves as a target number is dealt. The object of the game is to use all five cards in any order combined with any of the arithmetic operations of addition, subtraction, multiplication, and/or division to obtain the value on the target card. Krypo is played by pairs of students who call out "Krypto" when they have a solution. The solution is presented orally to the other player to verify the solution. The developers of the game estimate that one hand in three thousand is unsolvable.



One solution to the hand shown is: 12)((3 x 7 -20) +5) = 2

After your students have worked with the game for while, have them consider the following theorem about Krypto. *A Krypto hand is solvable using only the operations addition and subtraction if and only if (the parity of S) equals (the parity of T) and (S - T)/2 can be obtained by addition of some subset of the five cards. Where S = the sum of the five cards in the hand and T = the value of the target card. Note parity means being both even or both odd numbers: 7 and 3 have parity, 7 and 4 do not.* Have them test the theorem with at least 10 hands and see if it works. Then ask them to prove that it works. You might also ask them on what basis do they think the conjecture that 1 in every 3000 hands is unsolvable was made?

Applications

The mathematically talented know or can learn the concepts and computational aspects of arithmetic very quickly. Providing them with applications that allow them to use arithmetic is useful. The internet provides many resources in this area. Mathematically talented students can make use of many online resources at younger ages than expected or that the site generally recommends.

Math Forum	*http://mathforum.org*
MegaMath	*htttp://www. c3.lanl.gov/mega-math*
Eisenhower National Clearinghouse	*www.enc.org/topics/realworld*
Ask Dr. Math	*http://mathforum.org/dr.math/faq*
Brainteasers (use ones designed for older students)	*http://www.eduplace.com/math/brain/index.html*
Math Magic	*http://mathforum.org/mathmagic*

One type of interactive web site that allows application of mathematics techniques is the Engaged Learner project (*http://www-ed.fnal.gov/help*). Although not all the projects on this site have mathematics, many do. They present real world scenarios for the students and the lesson plans for the teachers. One appropriate unit is *A River Runs Through It*. This year-long series of integrated mathematics and science units was designed for gifted fourth and fifth grade students and includes content in science, math, and language arts.

Estimation and Mental Math

The time spent on estimation in elementary classrooms is only about 3% of all math time (Reys, 1983). This time is mostly spent on learning and practicing rounding as the estimation technique. For the elementary-aged mathematically talented, this is not sufficient. Several other types of estimation are useful such as those found the *Guess* materials from Barbara and Robert Reys (1983):

Front-End: Use front-end digits to make rough estimates (4219 + 7512 + 2446. . . 4 + 7 + 2. . . 13,000)

Rounding: Method commonly taught in school. Several methods are possible (43 x 88. . . 40 x 90? 50 x 80? 40 x 80?)

Adjusting: Compensation for initial roughness of estimate and adjusting it up or down or more closely approximate the exact value of a problem (42 x 61. . estimated as 40 x 60 =2,400, but actual answer is a little more than 2400)

Compatibles: Similar to rounding, but students learn to change a problem to make it more manageable by looking for numbers that "fit together" (2,775/6. . . compatible: 2,800/7 or 3,000/6 . . not compatible: 2,700/6 or 2,800/6)

Averaging: Useful in addition that involves numbers clustering around a common value. First, select a reasonable group average, then multiple it by the number of values in the group.

Additionally, these elementary-aged mathematically-talented students can begin working on mental math such as the UIL Number Sense techniques. One example of a mental math technique for calculating a two-digit product is:

1. Start with a problem such as 45 x 22
2. First, multiply the ones digits together. Write down the ones digit of the product and remember the tens digit. 5 x 2 = 10; Begin writing the answer: ____0; Remember the 1 in your mind.
3. Second, multiply the tens digit of the first number with the ones digit of the second number (4 x 2 = 8). Add the number in your brain to this product (8 + 1 = 9). Remember this sum in your mind (9).
4. Then, multiply the ones digit of the first number with the tens digit of the second number. 5 x 2 =10. Add this number to the number in your mind. 10 + 9 = 19. Write down the ones digit and remember the tens digit. Write down: __90 and remember 1.
5. Finally, multiply the tens digits together (4 x 2 = 8). Add this number to the number in your mind (8 + 1 = 9). Write this down and you have the answer: 990 (the correct answer)

Probability and Statistics

Whenever we or our mathematically talented students pick up a paper, watch the news, or browse the internet for current events, we are confronted with quantitative data. We see raw data, discussion of someone's "chances," predictions, polls, charts, percentages, rates, probabilities, averages, forecasts, trends, and statistics. While in our regular classes we deal with these at a knowledge and comprehension level, the mathematically talented are ready for a deeper understanding of these data. In addition to understanding the appropriate mathematics, students can gather their own data, do analyses, interpret the results, and clearly communicate them to others.

A challenging and fun probability exercise is the three-door or Monte Hall problem. This problem always generates interesting discussions among the students. Suppose you are on a game show, and you are given the choice of three doors. Behind one door is a car, cash, or something valuable; behind the other two doors is a goat or some junk. You pick a door, say number 1, and the host, who knows what's behind the doors, opens another door, say number 3. The door he opens in never the correct door so door number 3 reveals a goat. Then he says to you, "Do you want to change your selection to door number 2?" Is it to your advantage to switch your choice? This classic probability puzzle was also published by Marilyn Vos Savant in her Sunday column (1991).

The correct answer is "Yes," change doors. Following the publication of this answer, Marilyn was swamped with letters. Some of the letters were from mathematicians saying that Marilyn was wrong. Was she? Have your students debate and discuss the answer. Ask them to support your answer with a written explanation and state any assumptions they made about the condition of the problem. Can they determine the probabilities for being right and being wrong if they switch doors. Can they design and implement a model that will verify the conclusions they reached? If you or your students do not agree with the answer, you can "prove" the choice by doing one of the on-line simulations at

www.shodor.org/interactivate/activities/monty3
www.stat.sc.edu/~west/javahtml/LetsMakeaDeal.html or at *www.cut-the-knot.com/hall.html*
Other online probability resources are at
www.ericse.org/digests/dse99-08.html

Developing appropriate interventions for the younger mathematically gifted child involves matching the curricular offerings to the child's level of mathematical talent. This is done for the most talented with D->P techniques, acceleration, special classes, or clustering of students. The less extremely talented benefit from enrichment in the regular or special classes. This enrichment is not hard, but does require some planning. The ideas and outline in this article are a first step helping teachers get started on an exciting and challenging exploration into more appropriate mathematics.

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Answers

Farmer and the animals: The farmer had 3 turkeys and 1 pig. Also, any ratio of 3 to 1 will also work (6 turkeys and 2 pigs, 9 turkeys and 3 pigs, etc). This is a great problem as it can be solved by guess and check (not very efficient), systematic listing, making a drawing, algebra, and other approaches.

TAGT zoo: This problem is not solvable with many of the strategies used in the farmer story. Here the most efficient solution is to solve a simpler problem and generalize to the bigger one. When we make the problem have 10 cages instead of 1000 we find that cages 1, 4, and 9 are open. A careful observer will notice that these are the squares ($1=1^2$, $4=2^2$, $9=3^2$). Generalizing this we find 31 cages open. The exact numbers of the cages are: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400, 441, 484, 529, 576, 625, 676, 729, 784, 841, 900, 961

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(from TYLER-WOOD, CEREIJO, and PEMBERTON, page 8)

and non-gifted girls at the same grade level. Cho (1985) indicates that a possible reason for difference among the sexes in science career choice could be attributed to different educational experiences. Analysis of data indicate that boys participate in more classroom science activities and had more extracurricular science experiences when compared to girls. Clearly, providing gifted female student with appropriate experiences in science is an urgent need.

Women's Perceptions of Science

Hamrick and Carlisle (1990) indicated that women harbor stereotypical ideas about science and scientists. Most women believe science is a male dominated field with few opportunities for female participation. Weinburgh (1995) conducted a meta-analysis of the literature on gender differences in students' attitudes toward science. The correlation between students' attitudes towards science and student achievement was explored. Weinburgh concluded that boys display more positive attitudes towards science and that attitude toward science is highly correlated to science achievement.

Improving the elementary female's perception of science would seem to be an essential goal if one is to increase science achievement in female students and subsequently increase the number of females participating in science careers.

Women's Perceptions of Technology

Tyler-Wood, Mortensen, Putney and Cass (2000) found that initially gifted females participating in an advanced science/mathematics/technology program were unwilling to take risks when using technology. Females were more likely to use the computer to complete specific assignments using word processing. Males spent more time using the computer for entertainment and higher-level computer activities such as WEB page construction, searches and simulation games.

Ryan (1999) found that female students lacked interest in technology classes because they felt the instruction was not relevant. In addition, surveys indicated that many female students felt that they were not treated fairly. Female students believed that sexist attitudes were displayed in class. Volk (1997) indicates that females are still significantly underrepresented in almost all fields associated with technology. It seems very likely that females would not enter career fields where they would experience bias attitudes.

Barriers to Science and Technology Careers

Coleman (1998) studied barriers to career mobility and advancement for African-American and Caucasian women. One of the most frequently identified barriers for advancement was the lack of opportunity for professional networking and exclusion from the "good old boys" network. Coleman indicates that the "glass ceiling" is a very real phenomenon for both Caucasian and African-American females. It is important to provide females an opportunity to network and form support groups. A program for elementary-aged girls that emphasized mentoring and the establishment of a long-term relationship could help young girls establish a pattern of forming career enhancing long-term relationships. Such a program was advocated by Silverman (1999) as she documents ten activities that have a high potential for increasing the number of females that pursue technology oriented careers.

Weiler (1997) indicated that low-income African American and Latina adolescent females need extensive support for developing and implementing career plans. Interventions that seem promising include: implementing school-based initiatives, forming collaborations between institutions, providing access to career information, ensuring gender equality in occupational information, finding ways to cope with racism, sexism, discrimination and providing role models and mentors. Lanz, in Chipman, Brush and Wilson (1985) indicated that long-term programs are more effective in changing academic attitudes. One-day or short-term programs often do not involve consistent, active participation and rarely address the reasons females do not take advanced courses. However, exposure to women in scientific careers over longer periods of time as teachers, mentors or through internships does develop role models and results in positive attitude changes (Tsuji and Ziegler, 1990). Fox in Chipman, Brush and Wilson (1985) indicated that programs that maintain a "critical mass" of female students effectively encourage continued participation. A long-term intervention supported by appropriate mentoring would seem to provide important elements to sustain a long-term commitment to the study of science for highly capable elementary aged girls.

Effective Methods for Improving Female Participation

Burkham (1997) emphasized the importance of active classroom involvement as a way of promoting gender equity. Methods to increase active involvement include: engage in real life scientific experiments that personify females' interest areas, increase hands-on experience through lab time, allow girls to share research findings through innovative methods that have a strong verbal component (ex. two-way audio visual interaction through the use of the computer), increase opportunities for cooperative learning (Tyler-Wood, 1993).

Technology as a Vehicle for Extended Contact

Davis (2000) documented the role that technology can play in an elementary science class designed to increase under-represented female elementary students. Technology can serve as a door-opener or as a gate-keeper for female participation in science. If technology is used appropriately it can serve as a tool to increase an elementary school girl's use of science inquiry and discourse. Possible appropriate use of technology includes: conducting science experiments at multiple sites through the use of two-way audio visual technology, the use of chat rooms for scientific discussion, and keeping an on-line journal for science experiments. Davis' research strongly encourages the appropriate use of technology for increasing female participation in science activities at the elementary level.

Elementary Teacher Training

Feldman and Arambula-Greenfield (1997) determined the effective components of an in-service teacher program that enhance the knowledge and skills of elementary school teachers with regard to science content, effective teaching strategies and gender equity. Feldman and Arambula-Greenfield have determined that their intervention has a positive impact on science teaching, content and pedagogy, and on female student interest and active participation in science. The researchers provide training to pre-service teachers which indicates that even females who like science often indicate a dislike for the traditional teaching methods that characterize science courses, such as a focus on individual rather than interactive learning, isolated rather than socially relevant topics, textbooks and lectures rather than cooperative group work. It is paramount for teachers to understand the importance of including socially relevant learning contexts, gender-neutral language, and unbiased instructional materials while ensuring access to course materials, class participation and teacher feedback. The female students of teachers who participated in the training scored significantly higher on a science knowledge confidence scale and on the Attitudes about Science Scale. Clearly, this project has implications for the pre-service elementary teacher. If teachers can be trained appropriately in a program that not only presents theory but in a situation where they observe effective teaching strategies, they will be better prepared to meet the learning needs of highly capable female students. Pre-service teachers who experience this training are more likely to integrate effective practices into their teaching skills. Oakes (1990) indicated that interventions aimed at students' parents and teachers are effective in changing attitudes about science. Instruction in creating gender-equitable classroom environments is an especially effective form of teacher education intervention. Oakes' research reiterated the need for appropriate science methodology course work for pre-service science teachers. Cline and Schwartz (1999) recommend training teachers in curriculum methods that have been shown to be effective methods for increasing girls' participation in science. These methods include cooperative learning, hands on activities, and solution of personally defined problems. She urged teachers to confront sex bias directly through classroom discussions. Sanders, Koch, & Urso (1997) have developed a series of resources through the Teacher Education Equity Project. These activities could be used with pre-service education students to increase awareness of gender equity issues. The activities address: math, science and technology as male domains; cultural expectations of peers, teachers, parents and society; biased and inappropriate curriculum materials; classroom interaction and atmosphere; anti-intellectualism and attributional style; and gender fair testing and assessment.

Project Status

Currently, girls have been accepted into the BUGS project and development of technology oriented curriculum materials such as multimedia CD-ROMS, two-way desktop conferencing and a student friendly WEB page are underway. TAMS mentors have been selected and trained to interact with the BUGS participants. In the first month of operation, attendance in the after-school program approached 100%. The long term impact of BUGS has yet to be determined. Will BUGS participants enter science and technology careers? Will BUGS participants' achievement scores in science increase?

Data is being collected to determine if this literature based program will increase the number of females interested in science and technology and the number of females who obtain high proficiency in skills associated with technology and environmental science. Follow-up data will assist in determining the long term success of the BUGS Program.

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(see VERNA, CAMPBELL, & FENG, page 1)

developed research skills submit original research papers to these contests. Often, the Scholastic Aptitude Test (SAT) scores of this group exceeds 1300 (Campbell, 1991).

Academic contests were initiated in the 1930s in the USSR as a means of identifying the most gifted math and science students so that they could be encouraged to pursue careers in math, science, and engineering. America adopted similar initiatives in the 1940s and 1950s with the intention that these talented individuals would make early career decisions in order to accumulate the advanced training that is necessary to contribute in a number of critically needed technical fields.

Many countries around the world sponsor academic contests as a way of identifying and developing their most talented science and math students. The international Chemistry Olympiad began in 1968 among European countries. The United States commenced participation in 1984. Over 20 countries send students to compete in written and laboratory examinations that include problems in analytical, organic, inorganic, physical and biochemistry. Points are awarded for each section of the competition by a panel of international judges. Students are ranked upon the total number of points they receive.

Each section of the United States, based on high school selection, designates at least 5 students to take the initial nationwide exam sponsored by the American Chemical Society. Based on the results of this exam, 20 students are invited to spend two weeks at a chemistry study camp at the Air Force Academy in Colorado Springs, in June. Four students are then selected from the camp to participate internationally. In sixteen years the United States has won 15 gold medals, 26 silver medals, and 19 bronze medals. In 1999 high school age competitors representing 51 countries participated. Lisa Carlivati, of the U.S. team, won a silver medal, Alexander Ho and Wei Ho each won a gold medal, and Timothy Jones had the highest individual score in the competition earning him the top gold medal. Thus, the U.S. team finished first worldwide (American Chemical Society, 1999).

The goals of the United States National Chemistry Olympiad (USNCO) are multipurpose. It is a means of investing in the future of young chemists, a way to stimulate all young people to achieve excellence in chemistry; to recognize and challenge the knowledge and skills of outstanding chemistry students; to recognize the achievement of the teachers of these students and the importance of the school environment in which they learn.

A study was conducted to determine the effects on students' participation in the Chemistry Olympics. Specifically, this study sought to answer the following research questions:

1. Did the Chemistry Olympians fulfill their high potential by receiving awards, receiving doctoral degrees, and producing published works?
2. What did the Chemistry Olympians report as factors that helped or hindered their academic development?
3. Which parental processes were used when the Olympians were in school?
4. What were the Olympians' effort and ability attributions?
5. What were the Olympians' and parents' evaluations of the Olympiad program?

DESIGN AND PROCEDURE

Subjects

This study was conducted with United States high school Chemistry Olympians from the years 1984-1998. Since the inception of the United States participation there have been 300 Olympians. One hundred seventy seven Olympians were located and sent the survey and questionnaire materials. Of the 177 surveys sent, 133 were deliverable. The final number of participants, consisting of students and/or parents, in the study was 93 (70%). Of these, 65 were Chemistry Olympians (54 males and 11 females), ranging in age from 16 to 34; and 102 were parents, (52 fathers and 50 mothers). Ninety-five percent of the students were born in the United States.

TABLE 1

Family Background of Chemistry Olympians in the United States

Family Size	**Birth Order**		**Religious Preference**	**Olympian**	**Parent**
1.5 children/family	only child	36%	No preference	54%	9%
	1st child	40%	Protestant	22%	17%
	2nd child	19%	Jewish	9%	11%
	other	5%	Roman Catholic	6%	8%
			Other	9%	8%
			No response		47%

SES (Family Income + Father's Occupation + Mother's Occupation + Father's Education + Mother's Education)
Mean = 76.81 SD = 12.65 Range = 20.4 to 97.8

Olympians Who Played Musical Instruments	52%	Parents or Relatives Who Won Awards	22%
Parents or Relatives with Distinguished Honors	12%		

TABLE 2

Socioeconomic Resources of Chemistry Olympian Families in the United States

Number of Books in the Home	
0-9	2%
10-24	3%
25-99	8%
100-249	18%
over 250	66%
No response	3%

Type of Resource Books	Olympian	Parent
Reference	59%	50%
Encyclopedia	55%	45%
Atlas	58%	50%
Dictionary	69%	53%

Instrumentation and Methods

Each student was asked to respond to the Self-Confidence Attribute Attitude Scale Form O (SaaS) (Campbell, 1994) which measures the student's attribution level. The SaaS contains 29 Likert scale items ranging from strongly disagree to strongly agree. Principal Components analyses was conducted on all scales. This survey produced two distinct scales, effort and ability. Olympians who viewed success as an outgrowth of effort received high factor loadings on the effort scale. Those Olympians who linked ability as a reason for success received high factor loadings on the ability scale.

Each student and his parents were asked to respond to the Family Influence Scale (14 Likert scale items), and the School Influence Scale (11 Likert scale items) (Campbell, 1996) which measures the student's opinion of the importance of positive family influences and school hindrances on the development of one's talent. The respondents rate each statement as (a. none; b. almost none; c. little; d. some; e. much; f. great). Sample statements of the Family Influence Scale are: "Everyone in the family was an avid reader." "Being accelerated or taking advanced courses." Sample statements of the School Influence Scale are: "Not enough challenge." "I knew more than many of my teachers."

The parents were asked to respond to the Inventory of Parental Influence (IPI) (Campbell, 1994). This instrument was designed to identify a family member's perception of selected family processes. The first two family processes (Part I, Parental Pressure and Parental Psychological Support) are measured by a 17 Likert statement scale. The respondents express their degree of agreement or disagreement (a. strongly disagree; b. disagree; c. uncertain; d. agree; e. strongly agree) with such statements as: "My child was afraid to come home with a poor grade." " My parents expected too much of me." High scores on these statements suggest a demanding parent who exerts pressure to retain high levels of performance. High scores on statements such as: "I wanted my child to go to a good college." "My parents took a big interest in my schoolwork." suggest a psychologically-supportive atmosphere at home.

Part II of the IPI contains the next three factor scales (Parental Help, Parental Press for Intellectual Development (resources), Parental Monitoring/Time Management). Each family member specifies how often each practice occurred (a. never; b. rarely; c. sometimes; d. usually; e. always) for statements such as: " My parents helped me with my school reports." "I encouraged my child to go to the local library." "My parents set rules on the kinds of television shows I could watch."

The help scale (9 items) measures how often the parent went over mistakes from a test, help with schoolwork, and helped the student before a test. The emphasis here is upon the parents giving the time that is needed to help the child complete the schoolwork.

The press for intellectual development scale (9 items) measures how often the parent encourages the child to read books, buys books as presents, stresses the value of the local library and educational TV. Families with high scores on this scale emphasize the importance of intellectual resources.

The monitoring scale (8 items) determines if the family sets rules on the kind of TV watched, insists on setting aside time for reading, and requires the child to do his/her homework at the same time each night. Families with high scores for these processes offer a great deal of help and have distinct rules about homework, studying, TV and reading. Information regarding the parents' occupational and educational background, and family income was collected from the child.

Results and Discussion

Family Background

Eighty-six percent of the students were Caucasian and 14% were Asian, ranging in age from 16 to 34. Forty percent of the Olympians were the first born children in families that averaged 1.5 children per family (see Table 1). The socioeconomic status was higher than the average U.S. household and was not an influencing factor on the high school achievement of this sample. While growing up half of the Olympians learned to play a musical instrument. Some of the students had the role model of a family member who won awards or was recognized for distinguished achievement. Table 2 shows the results of the Olympians' socioeconomic resources. Sixty-six percent of the Olympians had over 250 books and dictionaries in their home.

School Background

Seventy-two percent of the Olympians responding attended public school and the remaining students attended religious private and non-religious private schools (see Table 3). Almost half of the Olympians felt that their parents were the influential factor in their school success. While 28% indicated that it was the student himself that motivated success. Thirty-six percent of the Chemistry Olympians were the valedictorians of their graduating class. The rank of students in their graduating class ranged from 1 to 47. The median high school size was 352 graduating students. Most of the students graduated at age of 17 or 18 but there were 7 students who graduated at age 16. During their high school career the Olympians, on the average, enrolled in 6 advanced placement courses. They also took part in extracurricular activities and participated in many competitions. The most popular contest was the National Merit Exam. Half the students received a scholarship in order to attend college. T-test results indicated that the females had a significantly higher general grade point average (GPA) than males. The Scholastic Aptitude Test (SAT) scores for the verbal portion ranged from 520 to 800, and for the quantitative portion a range of 660 to 800, with 26 students receiving 800. Thirty-four students received 800 on the chemistry SAT.

Of the Olympians surveyed, 60% have completed their undergraduate course of study (see Table 4). Of those students 39% completed graduate college, and 11% have completed their terminal degrees. Forty-nine percent are pursuing doctorate degrees. Twenty-two students are now in full time employment.

Computer Literacy

The computer literacy of the Olympians varied (see Table 5). Fifty-nine Olympians (63%) indicated that they own

TABLE 3
School Background of Chemistry Olympians in the United States

Type of School Attended	
Public	72%
Private Religious	6%
Private Non-Religious	22%

Most Influential Person	
Parent	44%
The Student Himself	28%
Teacher	10%
Parent and Teacher	10%
Parent and Student	8%

Age at High School Graduation	
16 Years	11%
17 Years	43%
18 Years	46%

Top 10% in Graduating Class	
Valedictorian	36%
Second Place	6%
Top Ten	9%

Number of Advanced Placement Courses Taken
Mean = 5.96 SD = 1.61 Range = 2-13

Participation in Competitions	
National Merit	54%
Westinghouse	10%
SMPY	9%
JSHS	2%
Scholarships Received	55%

	Mean		
	Male	**Female**	**Range**
General Grade Point Average (on a scale from 1-7)	6.14	6.87	
SAT-V	698	745	520 to 800
SAT-M	747	780	660 to 800
SAT-Chemistry	793	693	500 to 800

either a PC or Macintosh computer, 68% have access to a mainframe. They average 11 hours per week on the computer. The reported computer literacy of known languages varied from 1 to 12, with most of respondents knowing three languages. Word processing, internet and e-mail accounts are the major uses by over 90% of the respondents. However, 71% of the Olympians work with Math/Statistical programs, and spreadsheets. This data are far lower than that reported by Campbell (1996) for the Math Olympians but equaled that of the Taiwanese Math Olympians (Wu, 1996).

TABLE 4
College Experience of Chemistry Olympians in the United States

Transition	**High School to College**	**College to Graduate School**
Easy	66%	55%
Average Transition	23%	10%
Difficult	11%	35%
	College	**Graduatte School**
Mentored	33%	26%
Specialized Program	16%	
Completed College	60%	
Completed Graduate College	39%	
Completed Terminall Degree	11%	

Characteristics of Achievement

An overview of the means (M) and standard deviations (SD) of all the study's variables are shown on Table 6. Olympians seem to believe that ability is needed in order to perform well in a subject area. Simpson and Oliver (1990) studied gender difference in science achievement. These researchers found, that although, males achieved higher scores and possessed a more positive attitude than females, the females were significantly more motivated to achieve in science. Statistical procedures using SPSS 9.0 were used to perform independent t-tests between the means of male and female participants. In this study, the Olympians expressed the view that effort is linked to ability as a reason for achievement. Although, they may have the necessary intellect to succeed, the Chemistry Olympians believe in working hard and employing self-discipline to their endeavors. Although not significant, the females (M=3.02, SD=.79) had higher mean scores for ability than males (M=2.94, SD=.48). Significant differences were revealed for the females' (M=3.62, SD=.58, $p<.05$) effort attribution (M=3.18, SD=.60). A second order factor was derived that was labeled lack of effort resulting in failure. Significant results indicated that the females (M=3.85, SD=.55) considered lack of effort as a reason for failure (M=3.23, SD=.64, $p<.05$). However, the males see ability as the reason for success. This finding is opposite to Wu and Chen's (1999) findings of Taiwanese Chemistry and Physics Olympians. Wu's Asian population attributes their achievement more to effort than to ability. However, this dissimilarity may be due to cultural differences between the Chinese and American Olympians.

Students felt impaired by the hindrances in the school environment. This included the teacher's lack of subject matter knowledge and an inability to motivate these students. Another factor was a confining environment. This included items that related to the flexibility of class work. The Olympians viewed their classes as rigid, boring and almost prison-like.

To overcome the school situation, the home atmosphere offered positive influences. A significant difference was observed between the males and the females with regard to the conducive home atmosphere. The females viewed the home as a place of educational productivity more than the males. The females felt that the parents recognized their talent and offered means of stimulation to foster the development of this talent. Parents provided books, magazines, and association with inspiring peers and relatives. The parents did not overly pressure their children but did offer an abundant amount of support. These results are in line with the results of Campbell and Wu's (1994) study of gifted Chinese students and Verna and Campbell (1999) of gifted high school students. The Olympian parents actively en-

TABLE 5
Computer Literacy of Chemistry Olympians in the United States

Own a Computer	63%		
Access to Mainframe	68%		
	Mean	**Median**	**Range**
Hours Per Week Using the Computer			
PC	11	15	2 to 80
Mainframe	5	2	1 to 30
Number of Computer Languages Known	3	2	1 to 12
Software Programs Used	**Percent**		
Word Processing	95%		
Internet	93%		
Math/Statistical	71%		
Spreadsheet	65%		
Games	48%		
Database	29%		
Graphic Design	18%		
Desk Top Publishing	17%		
E-Mail Accounts	92%		

couraged their children's success.

Academic Productivity

At the time of this survey, 40% of the Chemistry Olympians were pursuing their undergraduate degrees. Overall, the Chemistry Olympians have produced a total of 788 publications. In the analysis of the type and number of scholarly works produced, it was found that the males conducted more professional presentations and participated in more exhibits than the females. The profile of the overall academic productivity included:

1. 34 Olympians having multiple articles published in refereed professional journals
2. 28 computer software products were developed by Olympians
3. 23 Olympians have conducted 170 presentations at conferences
4. 13 Olympians have compiled technical reports for their clients
5. 96 workshops have been presented by Olympians
6. 326 performances in the fine or applied arts were noted by 12 Olympians,
7. 4 Olympians who have published in juried media (1 Olympian had 99 of these)
8. 7 Olympians have chapters in edited volumes (1 Olympian had 15 of these)
9. No one published a monograph nor had a chapter published in a textbook.

The Olympiad Experience

The Olympians expressed their views on the entire Olympiad experience. Their experience in this competition had a more positive than negative impact on their lives. Although one-third of the Olympians felt they would have succeeded without this experience, it did make them more aware of the educational opportunities available to them and helped them in accepting their talent.

Conclusion

The Olympiad program is one of several academic competitions held yearly in the United States yet its impact is disproportional to its small size. To illustrate this finding consider that just 93 Chemistry Olympians have produced 788 publications so far. This level of productivity is sure to increase as the Olympians move along in their careers. The fact that 49% are pursuing doctorate degrees reinforces this conclusion. We can anticipate further productivity in terms of research papers, professional articles, and books as well as the output of many more software products and patents. The Chemistry Olympians make contributions by assuming positions in universities, in industry and in the military. In this way the impact of the program is magnified.

Another set of implications of this study deals with the ability of the US to increase the number of technical personnel that are so desperately needed for our growing economy. To accomplish this goal, the schools need to become more flexible in dealing with their most talented students. Teachers need to recognize students with great potential and see to it that their talents are developed efficiently. The families of the Olympians often report struggles in getting the schools to cooperate in this goal.

Furthermore, many of the Chemistry Olympians report shortcomings in their schools. Some Olympians knew more than their teachers, and most were bored with their classes. Many courses were taught at too low a level for them and some courses were organized too rigidly. Most Olympians experienced too little challenge at all levels of their schooling. At least these academic competitions provided a channel for this need.

The Olympians also report a negative tone in many of their schools. Teachers often generate this negative affective tone by their insensitive dealings with the Olympians. It is amplified by the hostile treatment from less talented students who are not dissuaded in this behavior by their teachers. Both conditions are especially prevalent during the elementary school years.

America needs to overcome these flaws if we are to develop the talents of our most gifted students. Teachers need to be sensitized as to how they deal with gifted students. They must be more alert to the social dynamics in their classes. They need to see how the other students are treating these young gifted students. At later grade levels schools need to work out approaches that challenge these high ability students. Teachers at these levels need to be more flexible in their dealings with them.

In sum, our technologically-oriented economy needs these talents too much — we must not waste them.

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TABLE 6
Means and Standard Deviations of the Study's Variables

Variable	Mean	Standard Deviation	Minimum Scores	Maximum
Socioeconomic Status (SES)	76.81	12.65	20	98
Advanced Placement Courses (AP)	5.96	1.61	2	13
Grade Point Average (GPA)	6.91	.38	4	7
Total Scholastic Aptitude Test (SAT)	1349.31	234.81	1280	1600
GRE Verbal	743.68	17.70	680	800
Awards	1.91	.96	1	5
Extracurricular Activities	3.84	2.34	1	9
Computer Literacy (COMP)	2.75	1.50	1	12
Effort (EFF)	3.29	.45	1	5
Ability (ABIL)	2.98	.40	1	5
Failure Due to Lack of Effort (EFAIL)	3.53	.60	1	5
Success Due to Effort (ESUC)	3.23	.79	1	5
Success Due to Ability (ASUC)	2.22	.89	1	5
School Hindrances (Neg. Sch.)	2.33	.84	1	6
Parental Pressure (Press)	2.10	.43	1	5
Parental Support (Supp)	4.48	.27	1	5
Parental Help (Help)	3.00	.52	1	5
Parental Monitoring (MTM)	3.00	.57	1	5
Intellectual Resources (PID)	3.69	.41	1	5
Total Publications (Acad. Prod.)	12.22	17.65	2	114

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(from COLLETT, page 2)

artifactual material for meaningful traces of the lives of those humans who had created such enduring refuse. My square lay in the center of the trench bisecting the midden. In the week I worked, I uncovered several hundred pounds of rocks, the shells of small white snails (scientific name: *Rabdotus*), and a single bison tooth.

My work involved a significant application of math and science knowledge and skills. Some tasks were fairly basic, such as recording (in metric) the weight of rock removed (including subtracting the weight of the bucket each time). Locating the three dimensional coordinates of an artifact involved a more kinesthetic approach. Interpreting the debitage correctly required anything from understanding of the stress dynamics of flint (more correctly, chert) to the thermodynamics of heating and cooling limestone. Anatomical knowledge of various bone fragments (scientific term: "faunal remains") had to be combined with information regarding both seasonal and climatic change.

For all its fascination, our week of work in a sultry southwest Texas canyon provided only limited insight when viewed in isolation. Bending over to scrape at the bottom of a single square, a process which required an increasing degree of contortion, I could not see, much less comprehend, the full extent of this site. Opening only a few squares, no matter how deeply, left hidden the greater expanse of the site. Archeologists, like any of us, can become so engrossed in elaborating the details of the tree that they lose sight of the forest in which it grows.

The compilation of this scientific and mathematical information became the central corpus of Site Director Henry Mueggenborg's report. Assembling the separate 10-centimeter layers into graphs based upon different items (stone mass, *Rabdotus* density, diagnostic artifacts) revealed the patterns or lack of patterns buried in the earth. For example, the *Rabdotus* shells for each square were counted in pursuit of the question of whether they were a food source for the Native Americans or there by their own attraction to the "anthropogenic soil development associated with a cooking site" (Muggenborg, 1994). Thousands of shells of data led to a somewhat tentative "possibly not." "While the *Rabdotus*' relationship to the burned rock is not as strongly inverse as that of the debitage to the burned rock, there is no positive relationship" (p. 58).

Even greater value lay in linking this specific site to the larger context of regional prehistory. Understanding the commonalities of middens in this region provided both clearer understanding of this specific slice of human activity as well as allowing some generalization of knowledge gained back to the larger framework. Dealing with the word "midden" as a larger construct enriched our depth of understanding.

Regge Wiseman, an archeological friend of mine from New Mexico, continually advocates for "opening up more area." Regge argues that, instead of thinking in terms of meter squares, archeology should think in square meters or hundreds of meters in area. Instead of digging a hearth or two, uncover the entire hearth field. His vision is limited only by the realities of his budget and the lack of human power required to move such tons of earth.

Yet, I think Regge has reminded me of that most significant idea that should drive our inquiry in gifted education (if not all education)—the BIG idea. Without a greater idea to drive inquiry, we may find our students and ourselves superb at counting Rabdotus without ever asking large enough questions.

In math and science, we sometimes presume that the quantification and the quantifiable to be the core of these fields. Yet, when we examine the work of some of the greatest minds in those fields, we find their studies have carried them to most "unquantifiable" ideas.

Douglas Hofstadter (1999), for example, has written an intriguing book that spends some eight hundred pages examining the mathematics of Kurt Godel, the artistry of M. C. Escher, and the complex music of Johann S. Bach. He analyzes the work of each of these grand thinkers in fascinating detail. One can spend days perusing a single chapter for all its depth and implications.

However, the book is not exactly about any of these individuals or their work. Rather, it is about an interesting aspect shared by the mathematically based labors of these three. Each of them created works embodying what Hofstadter refers to as "strange loops." Escher's painting "Waterfall," Bach's "Musical Offering," and Godel's Incompleteness Theorem all exemplify situations in which "by moving upwards (or downwards) through the levels of some hierarchical system, we unexpectedly find ourselves right back where we started" (10).

In fact, the book is not exactly about strange loops either. Its central concern is an even larger idea, the theme of Identity. Within the quirky nature of strange loops lies the paradox of self-reference. Strange loops are strange because they curve back upon themselves. You might say they talk to themselves, which is, of course, what we as humans do.

Which brings Hofstadter to his true interest—the human mind. *Godel, Escher, Bach* is his "very personal attempt" to understand the origin of the self. In a book that is itself a grand strange loop, he pursues the mystery of consciousness and how systems create meaning, "despite one's best efforts to keep symbols meaningless" (p. 3). Consciousness is a fascinating self-referencing strange loop.

It is the grand theme, like the view across an extensive site rather than the single meter square, which produces, the greatest depth and complexity. For all the math and science and music and art it contains, Hofstadter's book reaches beyond all these details and disciplines and grapples with one example of the generalization "Systems create Identity."

Another book that examines what one reviewer called "a bona fide Big Issue" is *Godel Meets Einstein* (Yourgrau, 1999). What a fascinating title. Imagine. One of the greatest mathematicians of the twentieth century meets the century's seminal thinker in physics. This is no charming biography, filled with anecdotes of how these giants became friends and chummed around Princeton. It is, instead, about the meeting of the ideas of these two. It recounts how Godel applied his mathematical knowledge to Einstein's theories of relativity and arrived at most intriguing thoughts on the Big Ideas of Reality and Change.

Godel first examined the General Theory of Relativity. He discovered solutions to the equations that demonstrated the possibility, consistent with the laws of nature, of time travel. Based on mathematics I would not have understood had it been included in detail, this book on science carries us to thoughts usually found only in science fiction.

In an even more bizarre turn, Godel then moves on to considerations of the Special Theory of Relativity and, suddenly, the reader finds him or herself immersed in deep philosophical waters. Yougrau works to explain (and this reader worked hard to understand!) how Godel arrived at the conclusion that the reality of time travel leads to the unreality of time so that, "in the last analysis, time disappears even in the actual world." Inextricably entwined with the science and math are the philosophies of Parmenides, Plato and Kant. Reading *Godel Meets Einstein*, one meets a most interesting challenge to the generalization, "Change is inevitable."

In conclusion, I would offer my highly personal pleasure in discovering that, when one has opened up a large enough "excavation" of math and science and constructs site maps from the detailed data unearthed, we arrive at the most profoundly personal and philosophical strange loops. I hope that we are able to share such journeys with our students.

Hofstadter, Douglas. (1999). *Godel, Escher, Bach: An eternal golden braid.* New York: Basic Books.

Mueggenborg, H. (1994). Excavations at the Blue Hole Site, Uvalde County, Texas, 1990. *Bulletin of the Texas Archeological Society.* 62, 1-74.

Yourgrau, Palle. (1999). *Godel meets Einstein: Time travel in the Godel universe.* Chicago: Open Court Press.

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Book Review

A Family Year Abroad: How to Live Outside the Borders By Chris Westphal Published by Great Potential Press, Inc., $18.00

The Westphal's two identified gifted children, Kelsey and Drew, were seven and ten years old when the family boarded a plane in Los Angeles for the far-away destination of Prague, the capitol of the Czech Republic.

This book may not be for everyone, but I was fascinated by the journal-like account of a family's journey through the "taking of a year off from the United States to a foreign country to live."

The author had chosen Prague because he determined that it was inexpensive to live there, had the technology that he needed to support his contracts to produce corporate newsletters electronically and do his freelance writing, an English teaching position was available for his wife, and a newly-built International School was waiting for Kelsey and Drew.

This year-long trip diary is fascinating, inspiring, poignant, scary, discouraging, and exhilarating. Chiefly interested in what happened to the gifted children when they were hurdled into such a strange and new environment, I was reassured by the way they adapted to each new experience which they encountered.

This book is also a practical guide; it is loaded with detailed tips, web-site opportunities, step-by-step outlines of "to-do's" for foreign travel, even if you aren't going to stay away for a year. In sidebars, the reader also receives the e-mail-by-e-mail saga of the publication of the author's first book, filled with short-lived jubilation, frustration, and pathos.

—reviewed by Dr. Mary Seay

What the Research Says About Math and Science for Gifted Students

Susan K. Johnsen

This review on math and science education for gifted students included articles published in *Gifted Child Quarterly, Journal for the Education of the Gifted, The Journal of Secondary Gifted Education* and *Roeper Review* during the past ten years. To be included, the article needed to focus on math and/or science education and be empirical or data-based. Articles were excluded if they were merely descriptive or conducted outside the United States. These selection criteria identified 37 articles. Of these 19 (51%) related to math, 11 (30%) to science, and 7 (19%) to both math and science.

Accelerated programs in mathematics are viewed positively by researchers because of their empirical support (Charlton, Marolf, & Stanley, 1994; Sowell, 1993). Students who are advanced in mathematics may be four and five grade levels higher than their peers (Ablard & Tissot, 1998). Some are extraordinarily talented. For example, Lupkowski-Shoplik and Assouline (1994) describe case studies of children who are able to calculate sums and differences in numbers by age 3 and have learned all of the basic math operations by age 6. In addition, these children who are advanced in math early, continue to be advanced with boys surpassing girls in performance (Robinson, Abbot, Berninger, Busse, & Mukhopadhyay, 1997). Given this prodigious ability in math, parents are able to identify young mathematically able children (Pletan, Robinson, Berninger, & Abbot, 1995), and the SSAT is able to identify children as young as third through fifth graders (Lupkowski-Shoplik & Assouline, 1993).). Gifted students appear to be more meaning-oriented than number oriented (Garofalo, 1993) and increase their understanding through problem based learning (Dods, 1997). Even so, kindergarten teachers tend to use math practices that are similar to those in regular classrooms (Wadlington & Burns, 1993). Students who do participate in accelerated programs (e.g., Study of Mathematically Precocious Youth and Center for Talented Youth Academic programs, computer-based) are able to take advanced mathematics courses earlier, frequently completing all of their coursework by ninth grade (Barnett & Durden, 1993; Kolitch & Brody, 1992; Miller, Mills, & Tangherlini, 1995; Ravaglia, Suppes, Stillinger, & Alper, 1995). Accelerated students also perform well in subsequent high school courses (Mills, Ablard, & Lunch, 1992) and attend graduate school in numbers that exceed the national average (Swiatek, 1993). Hunt (1996/1997) found that homogeneously grouped gifted students gain in computation and complete more mathematics activities than those who are heterogeneously grouped. In either setting, students prefer working alone (Hunt, 1996/1997). Factors that influence success in mathematics are parents (Verna & Campbell, 1999) and teachers (Gavin, 1996), with males feeling more parental pressure than females (Verna & Campbell), and teachers having a more powerful influence on females than males (Gavin, 1996). Teachers apparently need to tell girls about their math aptitude and encourage them to continue taking courses.

In science, notable women who exhibit precocity are encouraged by parents and teachers (Filippelli & Walberg, 1997). Just as in mathematics, accelerated summer courses affect entrance examination science achievement tests (Lynch, 1992). Factors that tend to influence success in science courses and scientific careers include attitude (Farenga & Joyce, 1998; Swiatek & Lupkowski-Shoplik, 2000), perception of ability (Li & Adamson, 1995), and accessibility to mentors (Subotnik & Steiner, 1993; Subotnik, Stone, & Steiner, 2001). Attitudes are particularly important predictors for young women who take advanced courses (Farenga & Joyce, 1998; Joyce & Farenga, 2000). In general, gifted students tend to attribute academic success to ability rather than effort (Li & Adamson, 1995). Unfortunately, basal textbooks fail to meet new science curriculum standards for high ability learners (Johnson, Boyce & VanTassel-Baska, 1995), mentors are frequently unavailable, and secondary school officials give inappropriate guidance (Subotnik & Steiner, 1993).

In both math and science, students who participate in fast-paced summer courses receive credit in their home schools (Mills & Ablard, 1993). To involve more inner city students, summer programs in math and science may increase confidence with mentors critical to the program's success (Miserandino, Subotnik, & Kenrick, Ou, 1995). Residential math and science high schools (Stephens, 1998/1999) and specialized math and science curriculum (Tyler-

Wood, Mortenson, Putney, & Cass, 2000) do appear to make a difference in gifted student performance. Gifted students can learn to be better at problem finding, fact finding, problem finding, and solution finding (Gallagher, Stepien, & Rosenthal, 1992). In both math and science, gender differences exist. Young women are influenced by teachers, young males by parents (Olszewski-Kubilius & Yasumoto, 1995). Reis and Park (2001) found that there are more high-achieving males than females in a sample of math and science high achieving students with far fewer female students in the science group. They also found that high-achieving males feel better about themselves than high-achieving females. Females who are high achieving in math and science are more influenced by teachers and families than males (Reis, 2001). These data appear to indicate that teachers and schools can make a significant difference in encouraging gifted students, particularly young girls, in pursuing math and science careers.

Ablard, K. E., & Tissot, S. L. (1998). Young students' readiness for advanced math: Precocious abstract reasoning. ***Journal for the Education of the Gifted, 21*****, 206-223.** This study examined above grade level abstract reasoning abilities of 150 academically talented students ranging from 2nd through 6th grades. The School and College Ability Tests and the Arlin Test of Formal Reasoning were administered to each student. Understanding of various abstract concepts varied by age for only 4 of the 8 subscales: probability, proportion, momentum, and frames of references. In general, the students performed like students who were four grade levels higher. Those in third grade performed at five grade levels higher. The authors conclude that there may not be one age at which children acquire abstract reasoning. They are ready for advanced mathematics at a much earlier age.

Adams, C. M., & Callahan, C. M. (1995). The reliability and validity of a performance task for evaluating science process skills. ***Gifted Child Quarterly, 39*****, 14-20.** The authors evaluated the reliability of The Diet Cola Test and its validity for identifying gifted students. They tested 180 students in grades 4 through 8 in six states. The authors concluded that the data did not support its use in identifying students but was suited for assessing science process skills as part of an instructional program or evaluation.

Barnett, L. B., & Durden, W. G. (1993). Education patterns of academically talented youth. ***Gifted Child Quarterly, 37*****, 161-168.** In this study 228 seventh grade students who participated in the Johns Hopkins University Center for Talented Youth (CTY) Academic Programs were compared to 186 eligible seventh grade students who did not enroll in CTY courses. The researchers used an ex post facto survey method to collect their data. They found that both groups were very successful academically in high school. Both took Advanced Placement and accelerated course work in a broad range of disciplines and received high scores. They also distinguished themselves in extracurricular activities and graduated with distinction. However the key differences between the groups related to their pursuit of a more challenging high school curriculum, results of standardized achievement tests, and college admission. The CTY group pursued calculus and took college courses earlier and had a higher proportion of students who accelerated in subject areas.

Charlton, J. C., Marolf, D. M., & Stanley, J. C. (1994). Follow-up insights on rapid educational acceleration, ***Roeper Review, 17*****, 123-128.** Two young adults who had participated in the Study of Mathematically Precocious Youth shared the effects of an accelerated program on their future. One graduate is an assistant professor of astrophysics at Pennsylvania State University who received her Ph. D. degree in astrophysics from the University of Chicago at age 22. The other completed his Ph. D. degree in physics at the University of Texas at age 20. They believe that rapid progress through school grades all the way to the Ph. D. degree is the optimal way for persons like themselves to enrich their educational experience and career.

Dods, R. F. (1997). An action research study of the effectiveness of problem-based learning in promoting the acquisition and retention of knowledge. ***Journal for the Education of the Gifted, 20*****, 423-437.** Dods at the Illinois Mathematics and Science Academy compared the effects of problem-based learning (PBL), traditional lecture (L), and a combination (PBL + L) on student retention of the major concepts in an elective biochemistry course taught at a school for talented students. He collected data through student self-evaluation of the depth of understanding, a test instrument used to measure actual depth of understanding, and a student evaluation of the course. The author found that in-depth understanding is increased by the PBL experience whereas content coverage is promoted by lecture.

Farenga, S. J., & Joyce, B. A. (1998). Science-related

attitudes and science course selection: A study of high-ability boys and girls. ***Roeper Review, 20,*** **247-251.** The sample consisted of 111 high-achieving students between the ages of 9 and 13 who completed the Test of Science-Related Attitudes and the Course Selection Sheet. Girls' science-related attitudes are important predictors of the number of science courses they select. They encourage educators to make science appealing through hands-on, inquiry-based activities.

Filippelli, L. A., & Walberg, H. J. (1997). Childhood traits and conditions of eminent women scientists. ***Gifted Child Quarterly, 41,*** **95-103.** The childhood traits and conditions of 21 eminent American women scientists were compared with those of 235 eminent women in other fields. Using a historiometric method, researchers drew these American women scientists from the book *Notable American Women* and lived between 1859 and 1975. Data were collected from books, journals, and newspapers. These young women shared common childhood traits such as precocity and hard work. They were more concentrated on science and engaged in scientific activities that were encouraged by parents and teachers.

Gallagher, S. A., Stepien, W., & Rosenthal, H. (1992). The effects of problem-based learning on problem solving. ***Gifted Child Quarterly, 36,*** **195-200.** The 78 students who participated in the experimental group were enrolled in a high school residential school for students talented in mathematics and science. The students received a problem-based course that incorporated social science, physics, and mathematics: Science, Society and the Future. The experimental group became significantly better at problem finding and performed better than the comparison group on fact finding, problem finding, and solution finding. Interestingly, the researchers found that prior experience with problem solving did not appear to affect the results.

Garofalo, J. (1993). Mathematical problem preferences of meaning-oriented and number-oriented problem solvers. ***Journal for the Education of the Gifted, 17,*** **26-40.** Using interviews, Garofalo examined the similarities and differences in strategic and metacognitive aspects of 11 middle school students' mathematical problem solving. Five of the students who were enrolled in a regular mathematics class were number-oriented while 6 who were enrolled in advanced or gifted classes were meaning-oriented. In graded situations, both groups preferred easier routine problems. However, in nongraded situations, the meaning-oriented group preferred multi-step and non-routine problems while the number-oriented students expressed preferences for simple routine problems. The author concludes that meaning-oriented students know that they can solve simple problems and do not have any sense of accomplishment without engaging in more complex multi-step problems.

Gavin, M. K. (1996). The development of math talent: Influences on students at a women's college. ***The Journal of Secondary Gifted Education, 7,*** **476-485.** This study focused on 16 female math majors who were in college at a highly selective liberal arts women's college. Using questionnaires, interviews with the students and mathematics faculty, participant observation in mathematics classrooms, and document reviews of college and departmental publications, the researchers found that young women needed teachers to tell them about their aptitude for math and encourage them to continue taking courses. In addition, the courses needed to have personal relevance for them with the professor allowing for class discussions and showing respect for the students.

Hunt, B. (1996/1997). The effect on mathematics achievement and attitude of homogeneous and heterogeneous grouping of gifted sixth grade students. ***The Journal of Secondary Gifted Education, 8,*** **65-73.** This study examined math achievement and the attitude toward math achievement over 12 weeks of 208 gifted students who were placed on homogeneous and heterogeneous classrooms. They found that identified gifted students who were homogeneously grouped gained in computation and completed more mathematics activities. They also found that the gifted students preferred working alone in both groups.

Johnson, D. T., Boyce, L. N., & VanTassel-Baska, J. (1995). Science curriculum review: Evaluating materials for high-ability learners. ***Gifted Child Quarterly, 39,*** **36-43.** This National Science Curriculum Project for High-Ability Learners is intended to specify appropriate science standards for high ability learners. Existing science materials were assessed using national science standards and needs of high ability learners. In addition, a curriculum framework was designed along with curriculum units. This review suggests that many existing basal textbooks fail to meet new science curriculum standards for high-ability learners particularly in the areas of discernible program goals and summative research on their effectiveness. The authors provide assessment criteria used in evaluating the curriculum. They conclude that a "one size fits all" curricula must be balanced with training and support for teachers who must implement it with gifted learners.

Joyce, B. A., & Farenga, S. J. (2000). Young girls in science: Academic ability, perceptions and future participation in science. *Roeper Review, 22*, 261-262. The researchers examined the participation of 55 high-ability and 55 average-ability female students, ages 9 through 13, in science courses. The results indicate that regardless of ability level, both groups of girls hold the same view of their future participation in science courses. The authors conclude that selection of science courses may be related more to gender than to academic abilities.

Kolitch, E. R., & Brody, L. E. (1992). Mathematics acceleration of highly talented students: An evaluation. *Gifted Child Quarterly, 36*, 78-86. Approximately 750 students who had participated in the Study of Mathematically Precocious Youth responded to a questionnaire regarding the effects of the program. These students did well in mathematics courses taken several years earlier than is typical and excelled on AP calculus examinations. The majority of the students took calculus two and a half years earlier. The students also participated in mathematics competitions and summer programs, reported working with mentors, became involved in independent projects, and read mathematics books on their own. In general, the females appeared to be less likely to accelerate greatly.

Li, A. K. S., & Adamson, G. (1995). Causal attributions of siblings of gifted secondary school students for science, mathematics, and English performance. *The Journal of Secondary Gifted Education, 6*, 229-232. This study of 32 gifted and nongifted siblings examined their causal attributions for success and failure in science, mathematics and English. The students were administered two sets of questions based on Ames and Archer's work. They found that having a gifted child in the family can influence nongifted siblings' attitudes toward the learning of science. These siblings attributed success in science to effort and good study strategy more so than the gifted. This attribution is supported by the literature that suggests that gifted children tend to attribute academic success to high ability while average children attribute success to effort.

Lupkowski-Shoplik, A., & Assouline, S. G. (1993). Identifying mathematically talented elementary students: Using the lower level of the SSAT. *Gifted Child Quarterly, 37*, 118-123. The authors found that the Secondary School Admission Test, which was designed for fifth through seventh graders, discriminated among talented third, fourth and fifth graders in an Iowa and Texas sample. The test identified those who were exceptionally talented and eliminated the ceiling effect for at least 98% of the sample.

Lupkowski-Shoplik, A. E., & Assouline, S. G. (1994). Evidence of extreme mathematical precocity: Case studies of talented youths. *Roeper Review, 16*, 144-151. This article describes four extraordinarily talented youngsters, two boys and two girls, who demonstrate an "uncanny" understanding of mathematics. By the time that Steve was 6 1/2 years old, he could solve algebra problems, type 50 words a minute, and write his own computer programs. By the age of three, Peter could count more than 20 objects accurately, count, read numbers past 1,000, read silently, calculate sums and differences of numbers less than 10, and play nursery songs on his xylophone accurately. By the time Joanna was 2 1/2, she was adding and subtracting Cheerios® at breakfast. Besides early mathematical problem solving ability, Lisa read fluently by the time she was 3 1/2 and learned all of the basic operations in mathematics when she was six years old. Given the difficulty that the parents encountered in attempting to find appropriate programming in public school, the researchers made some of these suggestions: Parents should be advocates for their children, have their child tested using standardized testing, and find enrichment programs outside the school system. Assessments should identify skills and content that the children already know so they might be challenged in school. Acceleration should be balanced with the study of other academic subjects and extracurricular activities. Talented students need to find an intellectual peer group.

Lynch, S. J. (1992). Fast-paced high school science for the academically talented: A six-year perspective. *Gifted Child Quarterly, 36*, 147-154. This article reports the results of a six-year study of academically talented students, 12 to 16 years old, who completed a one-year course in high school biology, chemistry, or physics in three weeks at a residential summer program. Students demonstrated subject mastery by taking college Entrance Examination Board science achievement tests. Their mean scores were higher than those of high school juniors and seniors. Follow-up studies indicated that students also performed well in subsequent science courses.

Miller, R., Mills, C., & Tangherlini, A. (1995). The Appalaçhia model mathematics program for gifted students. ***Roeper Review, 18*, 138-141.** In this study, 456 students in the second through the sixth grade participated in the model mathematics program. The students were placed in four instructional groups on the basis of their quantitative scores on The School and College Ability Test. Each student in the MMP received an individual education plan and assessments were administered to determine mathematics placement within the curriculum. In three months, students in Group 4 (the fastest-paced) mastered 1.3 years of content; students in Group 3 mastered 1.0 years; and students in Group 2 mastered .4 years. The majority of Groups 3 and 4 were ready for algebra by seventh grade. A number of the students completed the high school mathematics course offerings as early as ninth grade. More students also participated in the Johns Hopkins University Talent Search and increased their performance on the SAT math.

Mills, C. J., & Ablard, K. E. (1993). Credit and placement for academically talented students following special summer courses in math and science. ***Journal for the Education of the Gifted, 17*, 4-25** The researchers surveyed 892 academically talented students about academic credit and/or course placement for their participation in a precalculus or fast-paced science course during the summer. They found that 39% of the math students received credit and 38% of the science students received credit in their schools.

Mills, C. J., Ablard, K. E., & Lynch, S. J. (1992). Academically talented students' preparation for advanced-level coursework after individually-paced precalculus class. ***Journal for the Education of the Gifted, 16*, 3-17.** These researchers found that intensive summer precalculus mathematics courses that allowed students to proceed at an individual pace provide greater challenge and the prerequisites necessary to succeed in subsequent mathematics courses. About 80% of the students reported having received a grade of A in their high school mathematics course despite the fact that many were one or more years younger than their classmates. The authors conclude that schools should not be concerned that fast-paced courses do not adequately prepare gifted students for more advanced courses.

Miserandino, A. D., Subotnik, R. F., & Kenrick, Ou. (1995). Identifying and nurturing mathematical talent in urban school settings. ***The Journal for Secondary Gifted Education, 6*, 245-257.** This article is a summary of the results of a three-year Javits grant by the U. S. Department of Education that was designed to identify and nurture science and mathematical talent. Forty-five participants from an inner city high school, a heterogeneous magnet school, a laboratory high school and an elementary school for the gifted were involved in the study. Together with their teacher-mentors, the students spent 10 six-hour days studying and exploring advanced mathematical concepts in number theory, fractals, and probability by way of workshops offered by Hunter college mathematics professors and by teacher-mentors. Students also visited metropolitan area exhibits on mathematics-related topic. Results indicated that students increased confidence in their mathematical skills and selected more advanced mathematics courses in their high schools. The presence of a mentor proved to be a critical factor in motivating students to take advanced courses.

Olszewski-Kubilius, P., & Yasumoto, J. (1995). Factors affecting the academic choices of academically talented middle school students. ***Journal for the Education of the Gifted, 18*, 298-318.** Using a sample of 656 middle school students who participated in a summer academic program, these researchers found that gender influences the selection of math and science courses over verbal ones. Parental attitudes, previous educational experiences, and ethnicity (in this study Asian-American) influenced the selection of math and science courses over verbal courses. The importance that parents place on mathematics and science for their child's future may have the most powerful influence on a child's selection of mathematics and science courses.

Pletan, M. D., Robinson, N. M., Berninger, V. W., & Abbot, R. D. (1995). Parents' observations of kindergartners who are advanced in mathematical reasoning. ***Journal for the Education of the Gifted, 19*, 30-44.** This study examined two major questions: What behaviors and abilities do young, mathematically precocious children display? Are parents able to recognize such precocity? The researchers mailed a questionnaire to 120 parents of gifted kindergarten children. The sample was primarily Caucasian (77%), with Asians constituting 13%, African Americans (6%), and other groups (4%). The parents frequently mentioned adding, subtracting, and multiplying; counting; interest in money, computer games, board games, and telling time; making up story problems; reading road signs; and using arithmetic workbooks. Five factors were found to characterize the parents' responses: (a) general intellectual factor, (b) short-and long-term memory, (c) rote memory, (d) spatial reasoning, and (e) specific relationship knowledge. They concluded that parents can indeed identify advanced abilities in mathematics.

Ravaglia, R., Suppes, P., Stillinger, C., & Alper, T. M. (1995). Computer-based mathematics and physics for gifted students. *Gifted Child Quarterly, 39*, 7-13. A group of 27 middle and high school students took computer-based advanced math classes at a middle school. A tutor provided assistance that included correcting off-line work, grading tests, and certifying performance in the course. 92% of those who took Calculus AB, the first two quarters of college calculus, 100% of those who took Calculus BC, the entire year of college calculus, and 88% of those who took Physics C received scores of 4 or 5 on Advanced Placement tests. The computer courses were designed at the Education Program for Gifted Youth (EPGY) at Stanford University. The authors concluded that computer-based education makes it possible for gifted and talented middle and early high school students to complete advanced courses in mathematics and physics earlier than expected.

Reis, S. M., & Park, S. (2001). Gender differences in high-achieving students in math and science. *Journal for the Education of the Gifted, 25*, 52-73. Using data from the National Education Longitudinal Study of 1988, the researchers examined gender differences between high achieving students in math and science. They found that there were more high-achieving males than females in this group with far fewer female students in the science group. They also found that high-achieving males felt better about themselves than high-achieving females. Females who are high-achieving in math and science are more influenced by teachers and families than males.

Robinson, N. M., Abbot, R. D., Berninger, V. W., Busse, J., & Mukhopadhyay, S. (1997). Developmental changes in mathematically precocious young children: Longitudinal and gender effects. *Gifted Child Quarterly, 41*, 145-158. Young children with advanced mathematical skill (N=276) were followed for two years during kindergarten through first grade or first through second grade. Children were randomly assigned to a control group or a treatment group. Children in the treatment group participated in enrichment activities outside the school that supplemented the child's regular classroom program. Activities were problem-based and "constructivist" in nature. The students were administered the Stanford-Binet IV, Key Math Test-Revised, Woodcock-Johnson Achievement Test-Revised and the Word Problems Test. Gains occurred on three of the five math subtests, two of the three verbal subtests, and both visual-spatial subtests, with maintenance on the remaining three standardized subtests. Children who are advanced in math early, continue to be advanced and may become more advanced relative to age peers once they enter school. Boys surpassed girls in performance. The intervention resulted in change in the quantitative domain but not the verbal or visual-spatial domains.

Stephens, K. R. (1998/1999). Residential math and science high schools: A closer look. *Journal of Secondary Gifted Education, 10*, 85-92. This article provided an informative profile of the students, faculty, and curricula of each of the 11 state-supported, residential math and science high schools. The majority of students are Caucasian (69%) followed by Asian (16%). The majority of faculty had masters and doctoral degrees. The curricula offered both acceleration and enrichment models with all allowing the study of advanced level content. The program models were more comparable to colleges and universities than to traditional high schools. The author concluded that these high schools offer comprehensive, challenging and innovative educational programs.

Sowell, E. J. (1993). Programs for mathematically gifted students: A review of empirical research. *Gifted Child Quarterly, 37*, 124-132. This article summarizes and critiques the empirical research on programs for mathematically gifted students. The research indicates that accelerating the mathematics curriculum is desirable for the precocious student who reasons well. Precocious students enjoy working with others who are precocious and find the fast pace "invigorating." Since definitions of mathematical enrichment are unclear, the author found it impossible to draw conclusions about its efficacy.

Subotnik, R. F., & Steiner, C. L. (1993). Adult manifestations of adolescent talent in science. *Roeper Review, 15*, 164-169. This study examined the 146 men and women who were among the 300 semi-finalists and finalists of the 1983 Westinghouse Science Talent Search. At 26 years of age, 49 of the 60 male participants and 25 of the 38 female participants could be categorized as scientists or mathematicians because of their study or employment. The

11 men and 13 women who left science had, for the most part, found careers in other disciplines. They left the scientist's lifestyle because other fields were more attractive, mentors in science were unavailable, parents and secondary school officials gave inappropriate guidance, and undergraduate science instruction was of low quality. The authors conclude that the data collection confirm the poor quality of science education in the United States.

Subotnik, R. F., Stone, K. M., & Steiner, C. (2001). Lost generation of elite talent in science. *The Journal of Secondary Gifted Education, 13*, 33-43. This study examined the variables that lead to the retention and attrition of talented men and women in science. The sample included 85 Westinghouse Science Talent search winners who completed a questionnaire and interviews. The authors found that accessibility to a mentor increased the individual's status, eliciting further resources and recognition. Women tended to forgo high-powered careers for a more balanced life with family. Access to grants and senior faculty positions play a significant role in determining the satisfaction and level of opportunity for gifted scientists.

Swiatek, M. A. (1993). A decade of longitudinal research on academic acceleration through the study of mathematically precocious youth. *Roeper Review, 15*, 120-123. Five cohorts who participated in the Johns Hopkins University Study of Mathematically Precocious Youth were surveyed at the age of 19, some at the age of 23, and some at the age of 33. Students who choose to accelerate in high school do not suffer academically but gain speed in their educational preparation. These students perform well at advanced levels of study, complete college, and attend graduate school in numbers that exceed the national average. In addition, the students also express satisfaction with college and their experiences.

Swiatek, M. A., & Lupkowski-Shoplik, A. (2000). Gender differences in academic attitudes among gifted elementary school students. *Journal for the Education of the Gifted, 23*, 360-377. This study examined 2,089 gifted third through sixth grade children's attitudes toward academic subjects. After examining the EXPLORE, an achievement test, and an attitude questionnaire, they found that gender differences were discernible among these students. Boys have more positive attitudes than girls toward such subjects as science and computers and girls have more positive attitudes than boys toward such subjects as English, writing, and reading. They conclude that this gender difference, while small, may indicate the beginning of a trend that becomes more pronounced as students grow older. No differences were found in terms of academic performance.

Tyler-Wood, T. L., Mortenson, M., Putney, D., & Cass, M. A. (2000). An effective mathematics and science curriculum option for secondary gifted education. *Roeper Review, 22*, 266-269. Georgia's Project for Gifted Education in Math and Science involved 32 students in a two-year interdisciplinary math/science program that incorporated higher-level thinking skills and more real life laboratory experiences. Comparing this group to a control group who did not receive the program, the researchers found that the participants in the new curriculum performed significantly better on the ACT in the areas of science, math, pre-algebra, algebra, geometry, and trigonometry.

Van Tassel-Baska, J., Bass, G., Ries, R., Poland, D., & Avery, L. D. (1998). A national study of science curriculum effectiveness with high ability students. *Gifted Child Quarterly, 42*, 200-211. This study examined the effects of a William and Mary Unit "Acid, Acid Everywhere." The curriculum uses the national science standards and stresses advanced content, high level process and products, and a concept dimension. The authors found that students who used the units made small, but significant gains on the Diet Cola Test when compared to students who did not use the units. The teachers cited that the hands-on, problem-based and student-centered aspects of the units supported their teaching.

Verna, M. A., & Campbell, J. R. (1999). Differential achievement patterns between gifted male and gifted female high school students. *The Journal of Secondary Gifted Education, 10*, 184-194. This study investigated the factors that contributed to gifted high schools students' mathematics achievement. A sample of 225 highly gifted students (109 males and 116 females), ages 16 to 18, were semi-finalists or finalists in the Westinghouse Talent Search. The students and their parents completed the Inventory of Parental Influence and the Self-Confidence Attribute Attitude Scale. Males perceived more parental pressure than females to achieve in math. Being in a two-parent family was more important for gifted males' than gifted females' academic achievement. Higher socioeconomic status (SES) was associated with higher achievement for females. High SES was also associated with higher self-concept and math self-concepts for males, although high SES had no significant effect on self-concept for females.

Wadlington, E., & Burns, J. M. (1993). Math instructional practices within preschool/kindergarten gifted programs. *Journal for the Education of the Gifted, 17,* 41-52. The purpose of this study was to identify specific math practices and materials currently being used by teachers and students in programs for gifted three-, four-, and five-year-olds. The authors distributed a questionnaire to 25 teacher/administrators who represented 22 different preschool/kindergarten gifted programs in ten states. Results indicated that teachers frequently used unstructured activities, manipulatives, discovery learning, learning centers, games, and sensory activities. They frequently stressed problem solving, using real life problems. The study indicated that the teachers infrequently used a prescribed curriculum to teach students concepts and rarely selected problems from textbooks or workbooks for students to solve. Children were infrequently exposed to concepts/materials pertaining to time and measurement although research indicates that young gifted children often possess strengths in these areas. They rarely used standardized or teacher-made tests to assess math performance. While teachers saw the need for a differentiated curriculum, practices appeared to be similar to those used in regular classrooms.

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TEXAS ASSOCIATION FOR THE GIFTED AND TALENTED

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Being There

Tina Forester

As a five-year old, Cat entered several paintings in the Northwest Art League Spring Show. The children's division was filled with the artistic creations of elementary-age children. These as well as junior high, high school, and adult work cluttered a corner room in the local library. Many pieces showed promise and I remember how Cat paused and gazed carefully as we viewed each prior to the judging. Cat focused mostly on the adult works. There were many and she seemed to like them best. She pointed to shadow techniques with questioning eyes and remarked quietly to me on color blends. Cat was intensely curious, tugging on my sleeve to guide my perception and silently indicating through subtle expression which paintings she liked best.

Cat was possessive of her work. We filled out the entry forms together. She dictated her responses to each question while I scribed her answers. Once her paintings were cataloged and hung, it was time for us to go. The judges worked in privacy over an extended lunch break. Cat and I decided to go to McDonalds. She giggled and laughed and played on the equipment with the other children, strangers out for a Saturday treat. Running back from the ball pit with her sneakers in hand she looked like all the rest. Then she begged me to hurry and told an amused luncher that she had to go see her painting. She was expecting a ribbon.

Cat did ribbon that day and in art shows for the next several years she continued to do well. She painted and showed until she won Best in Show at both the Northwest Art League and the Lone Star Art Guild; but this day was her first and it was extraordinary in the win and her reaction. Following the awards the judges often critique the work. Cat waited patiently until all the award-winning adult and older children's work was assessed and discussed. The judge was hard, but fair. He pointed out mistakes in proportion and balance. Finally he was done. He thanked the audience and was turning to leave when Cat approached him. She wanted his opinion of her work, too.

I held my breath and nodded as this towering man took Cat aside to view her work. A small crowd of curious onlookers gathered around them. The judge noted the color and the balance of Cat's piece, Summer Garden. He was pleased with the abstract and appeared careful with so young a talent. Then he did something neither Cat nor I will ever forget. He dismissed her saying that she might be an artist someday, when she grew up.

Cat's face fell. For a moment she was silent. Then I watched as she drew herself up to her tallest, most impressive kindergarten height. "No sir," was what she said. He turned back in surprise. "No sir," she repeated once she had his attention. "…not someday. I am an artist today."

You see, she really was. Cat had completed the paintings, selected her best pieces for show, chose mats to enhance and hang them, entered the art show, and won her division. She would not wait for a future someday to appreciate her prize. She was there and in that moment she defined herself by her success. She would not be dismissed to wait until her little body grew taller before she could be acknowledged. She would not settle for the label of a potential artist. She was an artist.

Gifted children, especially the very young, face this problem more frequently than most people suspect. Well-meaning adults refer to their potential, refusing to accept their ability to achieve in the moment. They talk to them, well, like children, never suspecting the depth of understanding that lies beneath a small exterior. Worse yet, they talk about them as if they aren't even there. Many times Cat has quietly waited for an adult to include her in a conversation, then turned with beseeching eyes to me for an opportunity to share her thoughts. Her vocabulary always brings comments of exceptionality. Her ideas show analysis and synthesis abilities. She is with us every moment. Her bright, active mind is engaged. She accepts her ideas as meaningful and worthy of inclusion in adult conversations and problem solving. She is simply "there".

Her, "being there," or being present in every moment, or self-actualization is one distinguishing characteristic of Cat's giftedness. As a newborn in the hospital nursery room she could lift her head and survey the room. She was gathering information; she was there. As a baby she insisted on being considered in everyday decisions. Transitional changes were difficult for her unless she initiated them or was included in the thought process leading to the change. Cat believed her opinion mattered. She spoke in sentences well before the age of two. Her verbal and spatial reasoning skills have been exceptional from a very young age. Through observation and language Cat discovered and created her place in the family, school, community, and larger world. She continues to skillfully negotiate for privilege and responsibility based on life examples. Today Cat is a dynamic student of debate, an exceptional writer, and a leader in student and family issues.

Self-actualization is a term coined by psychologist and researcher Abraham Maslow (1954, 1962, 1971). He describes self-actualization as the gifted ability to use one's capacities to good purpose, to become fully absorbed in what one deems important, and to do so in a lively yet selfless manner. Maslow considers self-actualized individuals to be the most fully human individuals among us. They choose growth over stagnation, are honest about their knowledge and limitations, and capable of accepting responsibility. Characteristic of the self-actualizing individual is the ability to take every moment and opportunity in life seriously and make the most of one's potential without dwelling on one's difficulties and inadequacies. Another is the capacity to enjoy peak experiences — mystical moments of pure joy when an object or experience is perceived as a whole. (Maslow, 1962)

Based on the philosophical work of the German idealists, self-actualization is the ability to place oneself completely in the moment in time and to realize it. Psychologists, philosophers, and saints have danced with the concept throughout time. Simply put, self-actualization represents psychological wellness. It is the ah-ha experience so frequently noted among gifted individuals, the moment when inter-brain connections meet in a simultaneous rush of understanding. It is the athletic moment when perception slows and time and motion flow in uninterrupted perfection. It is the saint or shaman presence and awareness of the universe. It is Marxist praxis uninterrupted, Hegel's expressivist theory of self-realization, and lies within the Derridaic pause between reality and perception.

As a parent of a highly gifted child, I struggle with issues of proactive parenting for self-realization and fulfillment in a dangerous modern day society. The balance of modeling behaviors, guided practice, controlled risks, and full independence weigh in my conscience on a daily basis and have since Cat was born. She needs opportunities to initiate her own ideas, discover possible solutions, test them, and try again. To me the parenting balance means: How far can the toddler safely stray? Should she be allowed to touch the stray puppy? How high up the tree should the little girl climb? When will I allow her to play solo in the waves, or ride her horse bareback across the fields, or explore the caves with flashlight in hand? What risks are acceptable? Which hold a greater learning value? When can she lead, when can I follow, and when must I let her go?

Parenting is a commitment to care for and guard a child responsibly. If I respond to Cat's physical need for food, shelter, and safety, then I am her caretaker. Cat is fortunate to have a good caretaker; many children do not have one. If I respond to her psychological need for love, acceptance, and comfort, then I am her guardian. Cat needs someone to watch over her. All children do, but raising Cat is even more than that. Raising Cat means providing opportunities for her to experience her relationship to society and to the universe. Starting in the nursery, Cat has enjoyed interactions with affirming adults, each building on the theme that she is unique, worthy of recognition, and capable of full participation in life's many offerings. She is always discovering boundaries, testing them, and experimenting with alternatives. For Cat, life is not a race; life is a feast. She sees life as a great gift to be cherished and enjoyed. She sees herself as an integral part of a universal truth, and she teaches me daily. Indeed Cat is, "a child of the universe, no less than the trees and the stars, she has a right to **be here**."

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Tina Forester, a G/T Specialist at Tomball ISD, is currently in the Doctoral of Education Program, for Educational Curriculum and Instruction with an emphasis in Gifted and Talented Education at the University of Houston. A proponent of balanced acceleration and content-sophistication enrichment in the elementary years, Mrs. Forester has worked to develop an instrument to allow for systematized advanced mathematics delivery.

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TEXAS ASSOCIATION FOR THE GIFTED AND TALENTED
Member, National Association for Gifted Children (NAGC)
Volume XXII Issue 4

Fall 2002

STAND UP FOR GIFTED STUDENTS:

ADVOCACY IN THE SCHOOL AND HOME

Joan Franklin Smutny
National-Louis University

Gifted children need adult advocates to make their way in the world. Even those fortunate enough to attend a school that meets their educational needs come up against snags and difficulties that require more than a generalized response. A gifted college teacher once shared the following with me:

> In sixth grade, I moved to a new school and started hanging out with some kids who were a lot rougher than I was. Looking back, I can see that I was scared of them. My parents couldn't figure out what had happened to their studious child who now hated school and I couldn't talk to them because I was afraid that they would talk to the teacher or the kids' parents. As it turned out, my French teacher saw what was going on and sat me down to talk. He made me feel safe and that he was on my side. We had a lot of little talks and something he said over and over really stayed with me: the fact that *real* friends should never ask me to sacrifice any part of my identity. I've leaned on that bit of wisdom many times when I've felt pressured to go along with the crowd.

Ideally, advocacy for gifted children begins much earlier than sixth grade. Here is the experience of a mother who had to learn quickly that she has a critical

(see SMUTNY , page 19)

Silver Legacy: Shining on the Future for Gifted Youth

Stand Up for Gifted Students: Advocacy in the School and Home 1
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FROM THE PRESIDENT

James Collett

> *"The church became a great Te Deum in itself."* —
> Allan Temko (1995)

In the year 1160 A. D., Maurice de Sully, a man of common origins, became Bishop of Paris. His triumph inspired in him the vision of a grand new cathedral dedicated to the Virgin Mary. He would erect it on the Ile de France, the island in the Seine River on which the city of Paris began. This church, Notre Dame, would pioneer the development of a set of new architectural techniques that would eventually come to be labeled Gothic.

The cathedral of Notre Dame was built through a superb common effort. The entire community played a part, manual laborer as well as master artist, serf and villein as well as banker and blacksmith. Every social class, from merchant to noble, had a place in the medieval church. All contributed to the project. The grand ladies donated jewels; those with less wealth and position offered in-kind contributions.

The actions of the great corpus of volunteers were significant in a symbolic sense. However, volunteers comprised only a small portion of the actual work force and performed only unskilled labor. The specialized jobs, from quarrying and carving to crafting the stained glass, became the tasks of skilled craftsmen.

The term "architect" did not yet exist to describe the individual who oversaw the grand construction design. This person was assigned one of several different titles—master mason, master stonecutter. The most suitable designation, however, was *Magister Operas* or "Master of the Work". The names of the first two *Magisters Operas* of Notre Dame have been lost to us. Yet we know them well, not by appellation, but by the excellence of what remains of their work.

A Master Builder would have already served an apprenticeship in the masonry craft, where he learned such diverse construction skills as draftsmanship, stonecutting, quarrying, and lime burning. A commoner, he was hand-

(see COLLETT, page 13)

Tempo
Volume XXII Issue 4 Fall 2002

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The Texas Association for the Gifted and Talented (TAGT) is a nonprofit organization of parents and professionals promoting appropriate education for gifted and talented students in the state of Texas.

TAGT *Tempo* is the official journal of the Texas Association for the Gifted and Talented. It is published four times a year in January, April, July, and October. The subscription is a benefit of Full membership. It is also available by subscription. See inside back cover for details.

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Address correspondence concerning *Tempo* **content** to: *Michael Cannon, TAGT Editorial Office, 5521 Martin Lane, El Paso, TX 79903*. Call the editorial office at 915/ 778-3988, FAX 915/ 779-2625, or e-mail: cannon@whc.net.

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Advocacy: When To Be Pushy

Jay McIntire

Let's get this straight from the start, I was not raised on a ranch – not even a farm. My father was a college professor. We generally had a few horses around and occasionally a cow. That's about it, but I guess it's more livestock than most people have these days. You can learn a few things from livestock. I have.

Take advocacy, for example. Pushy, a very modest example of a beef critter, would have been a good lobbyist and can be a role model for us Texans in the field of gifted. Pushy was a cow that knew what she wanted and put all her effort into it. She got her name because she was very friendly, but she seemed to want to get closer and closer to you until she knocked you right over. It was impossible to get any work done in a pasture with her there. She'd lean on you until you couldn't reach what you intended to be doing.

It wasn't just humans that Pushy went after, either. She was even harder on fences. It didn't matter how deep we dug those post holes or sharp the barbs were on the wire surrounding Pushy's home. Every so often I'd have to chase her down in the woods and coax her back home before I got on the school bus. It would always be the same story. There'd be a spot on the fence line where she'd obviously leaned on the wire or the post so relentlessly that it would bend to her will and she'd be on the other side. It was never the same spot twice, but she'd pick a spot and lean on it in the dark of night until I'd hear my Dad yelling upstairs early in the morning, "Jay, come help me. The cow's out."

It seems to me that too often in our little field we're all pushing at different parts of the fence. Some of us want to push the fence over while others try to pull the darn thing down. Sometimes we get so concerned with our disagreements of philosophy, emphasis, or stature, that we forget that the easiest way to knock down a fence is to put all your force on one spot and not to give up until it gives way.

Sometimes we get so concerned with our disagreements **of philosophy, emphasis, or stature,** that we forget that the easiest way to knock down a fence is to put all your **force** on one spot and not to give up until it **gives way.**

Advocacy is the same. Just like Pushy, we need to choose our target carefully. Even though my fascination may be with very young gifted kids, sometimes the mood of the state, the interest of a key lawmaker, or the inroads of another gifted advocate suggest that the time is right to push for funding. Sometimes the situation calls for just sitting still and waiting for an opportunity to emerge.

Successful advocacy requires three things: an idea that matches the mood and spirit of the times; one person in the right role who believes that acting on the idea will solve a problem or create an important opportunity; and everybody, just like Pushy, getting behind that leader, that idea, and pushing relentlessly on the perfect spot in the system.

In gifted education we're fortunate. All of our worthwhile ideas serve children and families. All of our worthwhile ideas, if implanted, would drive economic and/or cultural growth. All of our members, the

(see MCINTIRE, page 18)

Project SAIL

Gail N. Herman
Patricia L Hollingsworth

Project SAIL is a three-year U. S. Department of Education Javits grant whose purpose is to identify and nurture gifts and talents in economically disadvantaged children. The four seasons of Project SAIL are the Summer Workshop, the Fall Parent and Teacher Institute, the Winter Drama Festival, and the Spring Renaissance Fair.

The Fall Parent and Teacher Institute

Each fall since 1986, leaders in the field of gifted education and parenting education provide workshops, seminars, and lectures at the Fall Parent and Teacher Institute. Summer workshop teachers are accompanied to the convention by their support teams of administrators and parents. The purpose of this aspect of the project is 1) to provide follow-up to the Summer Workshop, 2) to provide professional expertise to teachers, parents, and administrators regarding the needs of gifted students, 3) for parents, teachers, and administrators to feel and be a part of a concerted effort to help their students.

The Winter Drama Festival

Each year in February students present original plays at the Winter Drama Festival sponsored by the University School. The plays are usually a class or small group project in which students conduct research, write, and produce plays under the guidance of a teacher. The Winter Drama Festival, now in its 16th year, has a wide appeal to both teachers and students. The Drama Festival provides an excellent vehicle for students' creativity and for students to show what they know through an alternative medium, other than report writing and speech reading. The Winter Drama Festival provides one element of accountability for the teachers involved in the Summer Workshop. This helps ensure that students have opportunities for interdisciplinary study and integration of subject matter. It also lets the school administrators and parents see what the students can accomplish.

The Spring Renaissance Fair

The Renaissance Fair, also known as the Creative Producers' Convention, is a one-day celebration in May of students' and adults' creative products sponsored by The University of Tulsa and University School. During the exhibition there are activities to encourage participants to interact with the exhibitors. The Renaissance Fair has been a successful way to provide students with an authentic audience for their products. Teachers encourage students to do in-depth research in an area of their interest and create related products to share with other students and adults from around the state and region. The Renaissance Fair provides another element of accountability for the Summer Workshop participants. Their students have the opportunity to develop a creative product and exhibit it along with the work of other creative adult and student producers. The purpose of this aspect of the project is to encourage creative products and in-depth studies that are shared with an audience.

The Summer Workshops for Teachers, Parents, and Students

During the summer workshop, teachers and parents of 1st through 12th graders are involved in a variety of methods designed to promote active learning and gifted behaviors in students. Teachers are actively involved in an interdisciplinary approach to teaching and learning. They prepare for the Winter Drama Festival and the Renaissance Fair by being involved in activities similar to the ones they will use to develop their own students' creative projects.

Drama, movement, and active learning are carried into the art classes. Each morning the art teacher dresses in a costume appropriate for the daily theme. For the first art class, she dressed as an Egyptologist who had recently explored a pharaoh's tomb, which the children drew. During the classical Greek study, she dressed as Aristotle and gave the students a tour of the Parthenon. For the Middle Ages, she dressed as a queen and described how uncomfortable it was to live in a castle.

Morning classes for students are observed by workshop teachers and parents. During these on-site practicums, summer workshop teachers and parents 1) observe an integrated arts curriculum lead by teachers from the University School, 2) observe demonstration lessons given by consultants, 3) plan and implement activities for the students, and 4) participate in formative evaluation of the program.

In the morning during center time, teachers facilitate each class of students as they freely explore materials about the art and architecture, literature and drama, science and inventions, music and math of a particular time period such as the Ancient Egyptian, Greek, and Roman. Consultants in movement and drama invite students to show what they know through various kinesthetic, musical, and artistic creations. Teachers use these activities during the year in their own schools to spot and nurture talent. During the summer workshop activities teachers are preparing for the Winter Drama Festival and the Renaissance Fair by being involved in activities similar to the ones they will use to develop their own students' creative projects. For example, by learning story structures such as the circle, wrap-around, cumulative, and the traditional story structures, teachers are able to advise students when their creations approximate these structures, thereby giving structural form to creations. Another example of the summer workshop program involves Greek myths. When students participate in creating new scenes to insert into a Greek myth, talent is nurtured. The consultant designed activities to teach mime actions. When students created their own ideas for mime scenes, teachers were able to see the students who learned easily and quickly and were able to create in this medium. When the class needed lullabies for a particular scene between Thetis and Achilles, the students interested in finding and creating music stood out. These types of activities serve as a way to allow students to show their affinities toward one or another art form and their current levels of expertise.

In the afternoon of the summer workshop teachers participate in movement and mime activities and then see these activities again in demonstration classes with their students the next morning. One of the afternoon activities involves teachers in a creative mime and improvisation of Roman gods and goddesses. First teachers create signature postures for Roman statues of gods and goddesses in the Pantheon and then they create ways to introduce their characters by using mime or "found" props and creative vocal and physical techniques. In this simple activity, which their students also experience the next morning, teachers are able to observe students who demonstrate ingenuity and advanced vocal and physical creativity. They observe students who use vocal variety, paralanguage, characterization and mime to communicate in creative ways. For those students who have less confidence or experience, teachers see that the activity serves as a nurturing learning experience in the dramatic arts where talents might surface later on.

Students love **wandering** through topics and **discovering** interesting concepts, facts, and ideas.

One of the best ways that teachers can nurture talent is to develop interests and allow students choices. After initial arts experiences teachers inquire who is interested in having more opportunity to create scene ideas, characters, sound effects, or costumes and props. Teachers spot students who are excellent movers, mimes, or actors. After a period of improvisational creation, some "visual-spatial" students enjoy drawing the map of the story and drawing the movements.

(see HERMAN & HOLLINGSWORTH, page 12)

Texas Participation in the Duke University Talent Identification Program's 7th Grade Talent Search

Kristen R. Stephens

What is TIP?

Dating back to 1980, Duke University's Talent Identification Program (TIP) is committed to identifying academically talented students and to providing model programs and services to support the development of their optimal educational potential. TIP's major identification activity is the Talent Search. In its twenty-second year, Talent Search is the largest program of its kind in the nation, representing participation from over 5,865 junior high and middle schools in a 16-state region (Alabama, Arkansas, Florida, Georgia, Iowa, Kansas, Kentucky, Louisiana, Missouri, Mississippi, North Carolina, Nebraska, Oklahoma, South Carolina, Tennessee, and Texas). Over one million students have completed the Talent Search since its inception in 1980.

What are TIP's goals?

- To identify and serve gifted and academically talented young people in elementary grades through high school;
- To inform students about their abilities and academic options;
- To work with schools, families, and communities to address the unique educational needs of gifted and talented students;
- To sponsor innovative, challenging, and highly motivating educational programs;
- To conduct research on the nature of academic talent; and,
- To provide information resources for students, parents, and educators.

Seventh Grade Talent Search: The Facts

How does Talent Search work?

The Talent Search identifies academically talented 7th graders based on standardized test scores. Eligible students within the 16-state region must have scored at the 95th percentile or higher in an acceptable composite or sub test area of a grade level standardized achievement, aptitude, or mental ability test battery.

TIP mails packets of information to each school for dissemination to qualified students. It is the responsibility of teachers, school counselors, and/or parents to examine student achievement test scores to determine those who students who meet the above criteria.

Qualified candidates are invited to take either the SAT or ACT college entrance examinations. The SAT and ACT test administrations for 7th Grade Talent Search participants are exactly the same as that of high school juniors and seniors preparing for college admission. In past TIP talent searches, nearly a quarter of the 7th grade participants scored at least as well as the average college-bound senior on one or more parts of the SAT or ACT.

What are the benefits of participating in Talent Search?

The Talent Search provides an opportunity for highly able students to pursue an above-level testing experience and have an opportunity to build their test-taking skills.

Participating students also receive the following:

- *Student Counseling Guide* – discusses the SAT and ACT- what they are and how to prepare for them. It also explains how results can be interpreted.
- *Educational Opportunity Guide* – lists over 400 summer and academic year programs across the nation for academically talented students.
- *Insights* – a four-year, biannual newsletter that features articles and information for TIP participants.
- *College Guide* – A magazine sent to students during their tenth grade year.

In addition to the benefits above, high scoring students are sent invitations to recognition ceremonies in their states where they receive a Certificate of Distinction. Exceptionally high scorers are also invited to a Grand Recognition Ceremony on the campus of Duke University and awarded a commemorative medallion.

Recognition Ceremony invitations are sent to qualifying students in early May. In addition, Students may also qualify for TIP's Summer Residential Programs with scores achieved on the SAT and ACT.

Texas Participation in Talent Search

The top three participating school districts in Texas for 2002 were:

1. Cypress-Fairbanks ISD – 670 applicants
2. Katy ISD – 529 applicants
3. Houston ISD – 524 applicants

The following table indicates the number of students who participated in the 7th grade Talent Search in Texas in 2002. Texas ranked first in participation among TIP's 16-state region. In addition, 52% of school districts in Texas took part in Talent Search.

When is Talent Search information sent to schools?

Talent Search materials are sent to schools in late August. Contact your school counselor or gifted and talented coordinator for additional information.

When is the deadline to participate in Talent Search?

Deadlines follow an annual pattern. Applications for Talent Search must be submitted by the beginning of November.

For questions regarding Talent Search and other TIP programs visit www.tip.duke.edu or call 919/683-1400.

Texas 2002 Talent Search Numbers

Participants	Qualifying for State Recognition	Qualifying for Grand Recognition	Public School Participation	Private School Participation	District Participation
20,204	4706	277	1004	321	544

Kristen R. Stephens, Ph.D., is Support Services Coordinator for Duke University's Talent Identification Program

4th and 5th Grade Talent Search: What Texas Parents and Teachers Need to Know!

Kristen R. Stephens

What is the 4th and 5th Grade Talent Search?

The 4th and 5th Grade Talent Search (formally called MAP: Motivation for Academic Performance) strives to assist with the development and support of talented students. It functions as an informational resource program by supplementing efforts in the participants' homes, schools, and communities.

To take part, students must meet the following criteria:

- Attend school in TIP's 16-state Talent Search region
- Apply in the 4th or 5th grade
- Score at the 90th percentile or above on the national norms of a standardized achievement, aptitude, or mental ability test.

What are the benefits of participating?

Students who qualify will receive a Certificate of Achievement and *The Navigator* newsletter, which features articles and activities to help students develop new interests, learn about arising opportunities, and enjoy academic success. Participants receive the newsletter twice a year through sixth grade. Students also receive:

- *Parent Resource Handbook* – provides parents and students with information on a variety of topics pertinent to the education of high ability students, as well as resource suggestions.

- *Optional Above- Level Testing Experience* - Students can choose to learn more about their talents by taking the above-level EXPLORE test, developed for eighth graders by American College Testing.

Texas Participation in 4th and 5th Grade Talent Search

The top three participating school districts in Texas for 2002 were:

1. Houston ISD – 252 applicants
2. Coppell ISD – 230 applicants
3. Clear Creek ISD – 224 applicants

Texas ranked first in participation for the 16-state region with 27% of school districts participated. The following table indicates the number of students who participated in the 4th and 5th Grade Talent Search in Texas for 2002.

When is 4th and 5th Grade Talent Search information sent to schools?

Materials pertaining to the program are sent to schools in January. Contact your school counselor or teacher of the gifted for additional information.

When is the deadline for participation?

Applications to participate must be received by the beginning of March.

For questions regarding this and other TIP programs visit www.tip.duke.edu or call 919/683-1400.

Texas Participation 2002

Participants	Public School Participation	Private School Participation	District Participation
6993	746	97	285

Music Education in a Performance Context

Karen W. Royer
William R. Nash

The International Institute af Festival Hill in Round Top, Texas, is an oasis of beauty that literally astonishes the newcomer. Poised on the edges of the verdant, rolling hills of Central Texas, a towering gothic concert hall, which holds 1200 people, rises above sumptuous gardens. Perfectly restored historical houses are dispersed about the property. It is a community within a community. After all, Round Top itself is comprised of only 77 people. Then follows the obvious question for neophytes—what is it and why is it in the middle of nowhere?

James Dick, Pianist, Founder and Artistic Director of the Institute, is the visionary behind this realization. The cover page of a recent Institute's summer concert series program quotes Johann Wolfgang von Goethe as having once said, "Whatever you can do, or believe you can, begin it. Boldness has genius, power, and magic in it." Dick obviously possesses the genius to have constructed a life of service that encompasses power, which has created magic, not only for him but also for thousands and thousands of others.

When the senior author first met James Dick fifteen years ago, he was already twenty years into his vision for Festival Hill. He purchased the city dump and a defunct local school and went to work. Trying to get him to put a conclusion on this project is an elusive proposition—it is always twenty years from whenever the conversation takes place. Dick says, "Part of the vision for the future, is to accomplish facility wise and get that over with. Once that is over with, we can put back into focus the whole idea of how to serve" (Royer, 2001, p. 72). Festival Hill, the property, is debt free. They do not build if they do not have the money to do so.

Festival Hill, the teaching facility, offers ninety scholarships to students, average age 21, from all over the world. Acceptance for the summer program, which runs from June through mid-July, occurs only after a rigorous audition process. However, once accepted for the summer, the student enters into a rather unique teaching philosophy utilized by Dick in this performance setting that is considered safe in a profession that is incredibly intense. The students rotate "chairs" which means that the best player does not sit in the premier "first" chair for the summer. Every musician has the opportunity to sit in every position. This levels the playing field for everyone. Personal attention has been the hallmark of these studies. This is another James Dick ideal: "Size has something to do with this place. I am all for not having to have these huge classes even in our schools. You get lost and you deserve not to get lost" (Royer, 2001, p. 71).

This past season brought conductors from all over the world that led over thirty programs in June and July. This means that the students perform a completely different repertoire on Friday night, Saturday afternoon, and Saturday evening. This is a tall order for any performing artistic community as the selections run the gamut between Baroque to contemporary within the confines of one weekend.

How did all of this come to be? James Dick was born in Kansas to parents of modest means who exposed him to the arts at an early age. The family would attend Friday night band concerts in Hutchison. His mom and dad sang and played the piano, but it was a kindergarten music teacher who noticed that young James had a special proclivity for tempo via the rhythm sticks. When he was six, he began piano lessons even though there was no piano in the house. Young James helped pay for his lessons by selling door-to-door fruits and vegetables which were raised on their small farm. A typical day included rising early to practice, going to school, selling vegetables, and practicing again before supper.

By junior high, James was performing at schools and competing through the Federated Study Clubs. He almost always advanced to the state level of competition. He also was the first high school senior to win the Naftzger Competition for Young Artists. However, the turning point for James was the opportunity to audition for the world-renowned pianist Dalies Frantz from the University of Texas at Austin. As a sophomore in high school, James impressed Frantz sufficiently to be guaranteed a full scholarship to attend Texas upon his graduation from high school. This assurance was an incredible occurrence.

Following his graduation in 1963 from Texas with special honors, he received the Fulbright Fellowship for study at the Royal Academy of Music in London with Clifford Curzon. He was the first student allowed the privilege of teacher selection. After his two-year stint, he was awarded another Fulbright, which was an almost unheard of phenomenon. He was a major prizewinner in the Tschaikovsky, Busoni and Leventritt international competitions.

Unafraid to **dream**, to look beyond what they thought were personal limitations, to imagine a **new future**, to take risks.

After returning from Europe, Dick realized how essential the rural areas are to the life of an area and to one's own life. The time in Europe showed him that there is much more to education than just rote schooling, "that it is key to develop oneself artistically too" (Royer, 2001, p. 57). This awakened him to possibilities as "I saw students who seemed to have certain opportunities that I don't really see so much here. Opportunities that were given out to everyone—art and music in schools, for example" (Royer, 2001, p. 57).

Performance has always been a significant dimension to Dick's career. He felt that "although performance is an important aspect of one's work, I also felt that it could be wider. So I always had the idea not so much of teaching but of using that career as service beyond just itself" (Royer, 2001, p. 58). An indication of the depth of that commitment to service has been realized through hundreds and hundreds of public school concerts that were given free early in Dick's career. "If I was in a city nearby, we would write and say: Mr. Dick would be happy to come out and do something in the school if you could arrange it" (Royer, 2001, p. 58). Dick relates that one of the benefits of living in his small hometown in Kansas was that his was given ample opportunities for performance and that giving back to other small schools through performance was important. Not every student has the chance to see classical works presented.

Dick feels that he was fortunate to have the fine teaching that was afforded him, which was "teaching that was more than just dealing with the self and the virtuosity of a performance but was real delving into what music is and serving it first" (Royer, 2001, p. 58). Feeling that this quality of teaching should be given to many people was a part of the equation that went into the early thoughts of the vision of the Festival-Institute. The idea to teach in a school was not something that captivated him but teaching as a service to others did.

While there is pressure from the artistic directors of many orchestras and festivals across America to play music that everyone likes and recognizes, a visiting conductor related that pressure is nonexistent here, that there is the ability to do a crazy piece of music which allows one to fail unfettered. He indicated that there are things played that would never be played anywhere else in this country. The vision is not about filling seats to make money. It's about learning. Dick is a visionary, a dreamer. He is very devoted and caring.

Behind the concert stage there is always a quote for the day. The last week of the season this anonymous one appears, which perhaps sums it all up:

—Every person finds his or her own vision for life initially.
—When people see their own creative power, they are
—Unafraid to dream, to look beyond what they

> they are
> —Unafraid to dream, to look beyond what they thought were personal limitations, to imagine a new future, to take risks, to find renewed hope and trust in their own ideas.

James Dick, visionary and creative teacher, gives hope to young musicians that life can be like that which has been created at Festival Hill. From the young boy who worked hard and loved performing to the man who still does the same, he has achieved a life of exceptional experiences, which have been translated into serving others in a performance setting with commitment to excellence.

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Karen W. Royer, Ph.D., is the author of two books, Royers Round Top Café: A Relational Odyssey and Random Thoughts. She is working on a biography of James Dick to be released on the thirty-fifth anniversary of Festival Hill. She has published numerous short stories and articles. She is Adjunct Professor of the Wizard Academy, which is a marketing firm that teaches creative writing and marketing. She and her family own Royers Round Top Café and We Three Queens in Round Top, where she holds creativity seminars.

William R. Nash, Ed.D., is a Professor of Educational Psychology at Texas A&M University and serves as Coordinator of his department's Master's and Ph.D. program on "Studies of Intelligence, Creativity, and Giftedness" and was Chair of Karen Royer's Ph.D. Advisory Committee. He is also Director of Texas A&M University's Institute for the Gifted & Talented, which sponsors summer programs for teenagers. He is a Past President of the National Association for Gifted Children and was Chair of the Charter Board of Directors of the American Creativity Association. He was the 1996 recipient of TAGT's President's Award.

Texas Association for the Gifted and Talented

Mission Statement

To Promote Awareness of the Unique Social, Emotional, and Intellectual Needs of Gifted and Talented Students and To Impact The Development of Appropriate Services to Meet These Needs.

TAGT Executive Board Long Range Goals

- Advocate appropriate services and accountability standards for all gifted and talented students.
- Support quality professional development for educators of gifted and talented students.
- Provide current information, research, and training about gifted and talented learners and the field of gifted education to the TAGT membership, parents of the gifted, and general public.
- Increase and diversify membership.
- Increase and diversify revenue sources.

Adopted by the TAGT Executive Board: 2.3.02

(from HERMAN & HOLLINGSWORTH, page 5)

Teaching students about multiple intelligences is an important way to increase students' awareness of their choices, interests, and their problem solving abilities, thetic, musical, linguistic, interpersonal, and visual-spatial areas. The students' abilities are then nurtured by giving them more differentiated instruction, tasks, and roles to play in the final production. The key for the teacher, in order to spot and nurture talent is to be a good observer and listener.

Students differ in many ways; students preparing stories for performance do not all need the same audience challenges. Some students will be challenged by telling and acting in front of their younger schoolmates; some others will be challenged only when they reach beyond the school audience into the larger community. These students might perform at the Winter Drama Festival, on local cable TV, in libraries, historical societies, or even as storytellers at birthday parties for younger students. Teachers can nurture talent in many ways, through developing students' interests and choices, through the differentiation of tasks and instruction, and through coaching about different products and audiences.

The Network News Quarterly

Since 1986, The Network News Quarterly has provided teachers, administrators, and parents with information concerning many aspects of gifted education. Summer Workshop teachers, administrators, and parents receive the NNQ, which provides the details of all components of Project SAIL, plus timely articles concerning the needs of gifted children. The newsletter is the basis for networking amongst those already involved in University School activities and those who will become involved as a result of their participation in Project SAIL.

Conclusion

Interdisciplinary active learning encourages gifts and talents to emerge and develop in economically disadvantaged students. Students love wandering through topics and discovering interesting concepts, facts, and ideas. The children are like sponges in their interest centers of the historical time periods, soaking up information that they love to share with others. Project SAIL teachers learn to allow students to show their knowledge through their artistic creations and products, which are shared with a real-life audiences at the Winter Drama Festival and the Spring Renaissance Fair. Having these audiences gives many students motivation to upgrade their creations and to do their best.

Teachers and parents in the Project SAIL Summer Workshop learn to appreciate their students and children in new ways. As adults observe their children in activities that allow talents to surface, these adults begin to encourage their children. Often the parents and teachers attempt to provide experiences to further the children's newly discovered interests and talents. The Summer Workshop, the Newsletter, and the Fall Parent and Teacher Institute, the Winter Drama Festival, and the Spring Renaissance Fair are the parts of Project SAIL that help students discover and develop their gifts and talents and help their teachers and parents become aware of their abilities.

Gail N. Herman is an international gifted education and storytelling consultant. She serves as a drama and movement consultant and teacher for Project SAIL held at University School at The University of Tulsa. Additionally she teaches courses for Garrett Community College and Lesley University.

Patricia L. Hollingsworth is the director of University School at The University of Tulsa. She is the principal investigator and project director of the Javits funded Project SAIL. She is an author of the SAILS Books *and co-author of* Smart Art. *Further information about Project SAIL and University School can be found at <www.uschool.utulsa.edu>*

(from COLLETT, page 2)

somely paid, though not always entirely in coin. His cash wages might be augmented with a place to stay, a stray chicken or pig, even clothing for his children.

One special article of apparel was bestowed on a Master Builder. His commission earned him a symbolic pair of leather gauntlets. Undertaking an assignment thus literally involved "putting on the gloves." (Temko, p. 105). While the Master Builders provided the hands for the cathedral project, the religious leaders bestowed the heart. The original vision was theirs. They provided the initial impulse and the sustaining energy. They made the great decisions of policy and assumed the grand risks—political, personal, and financial.

The first Master, in a remarkable leap of imagination, translated the dream of Bishop Sully into a structure of stone and space. Alain Erlande-Brandenberg (1997) described this individual as possessed of "ambition, technical acumen, clarity and serenity. He had the audacity to devise and realize the largest and highest building yet erected within an urban framework." (p. 78).

The entire cathedral would serve as a teaching tool, providing an image of Heaven on Earth, a Heavenly City both inside and out. (Hellman, 1994). Centuries of religious tradition dictated the basic configuration. The cruciform lies at the center of the plan of Notre Dame. The building was constructed in the shape of a hollow cross, with the altar at the top dedicated to the Virgin Mary, whose church this was. However, this basic religious form would be created entirely within the building. Notre Dame form is a great horseshoe, the middle cut by the transept and the end closed with the western façade. This allows for a greater interior space and supports the erection of a higher roof.

The completion of this plan became a project spanning eighty years. Bishop Sully devoted the remainder of his life to the construction of Notre Dame. The building tasks passed from Master Builder to Master Builder. At least six different architects put on the gloves for this commission.

With the completion of the western wall in 1250, Notre Dame was "finished." Yet, that four score block of years marked only the completion of the fundamental structure. Major work on the cathedral would continue across another century. Entirely new architectural technologies would arise, though the grand design remained dominant.

The cathedral stones were carved from the bedrock of nearby quarries, under the careful scrutiny of the Master Builder. Each stone was cut from its bed along the natural seam of the rock. Rough finished, the block received its final shaping at the mason's lodge adjacent to the cathedral site. Pope Alexander III, on a visit to Paris, dedicated the laying of the first foundation stone.

This underpinning consisted of a bed of stones ten yards in depth. Never seen again once completed, this hidden part of the edifice earned the same elaborate care as the most visible façade. The blocks were placed in the same alignment in which they came from the quarry to take full advantage of the strength of their natural geologic resistance. The foundation thus established "a tone of integrity" for the entire structure (Temko, p. 127).

The first Master Builder completed the choir and the apse (the curved section around the front of the church). This area served as the heart of the church and the central focus of worship. Finished in 1182, this structure utilized two of the three new elements that became Gothic architecture.

The first critical element was the pointed arch. Its strength allowed for a much higher and narrower arch and, therefore, a taller structure. Thus, Notre Dame could produce as one of its most vivid expressions, a "conquest of height" with the narrow triangular top of the arch symbolized the Trinity (Temko, p. 188).

The second element, the ribbed vault, provided the strength and tension necessary to create a stone ceiling atop the arches. The vault began with the stone ribs suspended across the open roof. Where a group of for stone ribs met, they were locked into place at the highest point by a special stone—the keystone. Once the ribs were hung, the spaces between ribs were filled with stone bocks. The final unification of arches and vaults produced a spectacular impression of beauty and strength. The massive weight of all the suspended stone was transferred along the ribs to the supporting walls. The great central ceiling of the church measured 170 feet in length and over 157 feet in width, flanked by a double aisle over 40 feet wide. The ceiling rose to an imposing 107 feet, over 30 feet beyond anything attempted prior. In 1182, on the Feast of Pentecost, the master altar was consecrated in a "splendid "ceremony (Temko, p. 141).

That same year, the second Master Builder, another forgotten name, commenced construction of the nave (the western end of the cathedral). This Master honored the vision of the original plan, "retaining the rhythms of the large arcade," (Erlande-Brandenberg, p. 90). However, he modified the interior aisles in a manner that produced a more spacious effect. Columns that alternate in style further reflect his individual aesthetic vision, while in no way lessening the support of the grand vault. (p. 89). Most importantly, he would develop the third great Gothic innovation—the flying buttress.

The original choir contained two serious faults. One was its darkness; the other was the instability of the upper walls. Each problem appeared to prevent the correction of the other. Larger or higher windows would permit more light, but would further weaken the walls.

Light played a crucial role in the cathedrals. The theology of the times embodied the belief that humans could approach a greater understanding of the light of God by viewing the light of material objects in the physical world. Light should thus flow into the church to illuminate both the worshippers and the rich vessels of silver and gold housed there.

Stained glass had three significant properties that made it the great medium of the cathedrals through which light would flow. It appeared an intrinsically rich material, resembling precious stones. It became the bearer of holy images, providing instruction and enlightenment to an illiterate populace. Finally, like the divine, stained glass embodied a mystery, because, in a world lit only by fire, it glowed without burning.

The flying buttress solved both problems. Graceful stone arches branching from sturdy pillars were constructed against the outside walls. The weight of the vaulted roof flowed away from the walls and down the buttresses. Each buttress stood against the walls at the critical stress point where it propped both the ribbed vault and a broad segment of the nearby wall.

The building became the equivalent of a skyscraper turned inside out, the support structure outside and the beautiful detail within. The buttresses also allowed for the "skeletonization" of the edifice, supporting walls becoming little more than pillars and arches, a stone screen of posts onto which to hang the metaphorical stained glass images.

Ornately detailed rose windows could now flower in the walls. A spidery masonry framed the fragments of glass. Light and color and symbol all combined to convey messages to the congregation within.

Oriented to the East, the sanctuary received the illumination of the rising sun, symbolizing life itself. As the sun sank below the horizon suggesting death, the evening glow lighted the lessons on mortality upon the Western facade. North, with its cold austere winds, represented the Old Testament. The Northern light flowed through a rose window of blues, recalling the severity of a patriarchal God. In the South, one felt the warmth of unlimited love in the image of Christ, glowing in the reds of the Southern rose.

Following completion of the nave around 1200, construction began on the west façade. Each of the three portals focused on the great Gothic themes of life, death, judgment, and resurrection. Almost every inch of the entranceway was fashioned to elicit reflection from the visitor even before they entered the cathedral. Its surface covered with a multitude of figures, each portal elaborated a unique focus. Complementing the riotous detail of the entrances, the nine compartments and two towers of the wall conveyed a sense of calmness and stability. After twenty-five years of work, the façade was finished with the completion of the towers.

Notre Dame served as a cathedral from its beginning. Worship continued without interruption through all the construction and reconstruction. . The visitors thus encountered a complex mix of old and new. Old walls remained standing until new ones were completed, then pulled down like curtains to reveal the raw newly crafted stone behind. The renovations would continue over the next century. "Thus it must have been difficult to assess the building while it was under construction. Only after completion would it have been fully 'legible.'" (Erlande-Brandenburg, p. 54).

The North Tower of the west façade became the first to contain one of the bells made famous by novelist Victor Hugo. Named Guillaume for the Bishop who donated it, this bell was placed in 1248. By 1285, the tower held four bells. The South Tower would eventually contain the huge Emmanuel bell, presented in 1681 and weighing over three tons. Before the electrical age, it required a team of eight men to ring it.

The gargoyles became the last feature added that indelibly identifies Notre Dame. The name derives from the old French word *gargouille*, meaning, "throat." The term originally referred to the rather ordinary drains atop the cathedral. Over time, sculptors began to carve these spouts into animals and grotesque beasts. Eventually, an entire pantheon of demons and winged creatures adorned the higher reaches of the cathedral, grimacing down upon the tiny mortals below.

The Cathedral of Notre Dame, like all the Gothic cathedrals, was produced as a total experience, the incarnation of the ideals promoting its construction. "The cathedrals were the result of a common idealism, catalyzed by a small group of superior men, who were drawn from an infinite variety of backgrounds." (Temko, p. 300).

This year, TAGT has reached a landmark point in its history, hosting its 25th Annual Conference. A Silver Anniversary, a quarter century, is a venerable age. However, if we measure that span on the scale of cathedral building, we are somewhat humbled. Yet, we can also find inspiration when we view our efforts through this grander lens.

What if we approached our work in TAGT (and in gifted education) as cathedral builders? What if we each sought to earn the title "Master Builder?" What if we apprenticed ourselves to acquire not only training and skill but also to pursue a sense of vision that looks into a future far beyond the reach of our own efforts?

The past quarter century's work has already constructed a rock-solid foundation which underlies the labor we continue today as we strive to build walls which reach to new heights. Like those cathedral builders of old, we envision things beyond the already known. Like them, we will have to construct innovative architecture as we work, imagining new potentialities within our problems while we, as did those masters of stone, strive to raise seemingly improbable ceilings to height not reached before.

What if we endeavor to link together disparate materials into a single, harmonious whole? At times, we will need the work of those who hew great blocks to form thick walls. Other times require those who can work myriad fine pieces into a delicate picture. Some occasions will necessitate carvers who can sculpture clear messages from difficult materials. Eventually, we must have those who work with in entirely different materials to plane and shape the outer doors and railings that adorn our portals.

Perhaps we even need to include the gargoyles—those who cling to the outer boundaries of our edifice and remind us of the darker sides of our nature. Perhaps a place should remain for the half-formed.

Like a cathedral, our doors should be open to all. Some may come out of curiosity; others will enter to challenge. Many will come, however, already bringing some measure of faith. What each finds in our structure will be determined to a large degree by what they choose to find. Yet, if we dedicate ourselves to being great master builders then, even if no one recalls our names, whether they are faithful or unbeliever, each individual who comes will respect the quality of our work. I can think of few greater tributes than to have the work of the Texas Association for the Gifted and Talented described as the result of a common idealism, catalyzed by a small group of superior individuals.

And, even if we never fully attain that lofty stature, perhaps our efforts will at least supply a small amount of one final wealth of the cathedrals. If nothing else, TAGT can provide a place where those who serve the gifted (and the gifted themselves) and who have undertaken lengthy pilgrimages or suffered difficult trials can find welcome, support, refuge—sanctuary.

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Parent Focus

On Empathy and Hope

Tina Forester

Cat was conceived the year that her grandmother, Catherine, lay hospitalized in "waking" coma. Initially diagnosed with breast cancer, Catherine's lymphoma had spread, resulting in a brain tumor. The prognosis wasn't good. Everyday after teaching, I would visit her. She was often awake, but unaware of time, place, and what we call reality. Most of the time she didn't know I was there. When she could see me in the room, she seldom knew who I was, but she saw geraniums on the empty windowsill and loved them. They needed water, she said, and wondered why no one ever tended to them.

Catherine quite simply "woke up" one day in late May. Amazingly, she knew I was nearing the end of my pregnancy and although I will never know for sure, I think she wanted to come back to share our joy. I believe she literally "willed" herself back into our world choosing with it the suffering of a long, slow decline over the easier choice of death. Catherine stayed with us for eight more years, tragically classifying her as a "cancer survivor". In doing so, this courageous woman shaped Cat's young life with a model of patience and a view of how the spirit of joy can co-exist with daily physical pain.

In her early years, Cat became a weekly visitor to the outpatient oncology unit. She and Catherine would sit together for hours reading books, playing make believe, or rolling a ball back and forth. As Catherine was bound to a walker, then a wheel chair, Cat learned to walk and run. Without instruction and in a true spirit of joy, Cat became her arms and legs, anticipating her needs and doing simple errands for her. Now living next door, Cat initiated visits without me and the bond increased as the two played and worked and rested together. Always treated as an equal, they watched and discussed endless educational television shows, made and shared fine meals together, and loved each other as only the very old and the very young allow themselves to love.

It was during this time that Cat began collecting and saving botanicals. She had caches in the garage, behind the garden wall, and beneath rocks at kindergarten. She collected flowers, leaves, roots, berries, and sap. Some she mashed into a pulp, others she organized into groups according to parts of the plant, number of petals, sharpness or sweetness of smell, and other self-created categories. Always an attentive child, botany soon became her favorite subject. Her grandfather shared the interest. He helped her understand growth cycles, classification systems, and nutritional properties. Once he found her eating some berries of unknown origin. He re-explained forcefully that some plants were very poisonous and that she could not eat them. Cat broke into sobs wanting to know how she could test them to see if they would work as a cure. Secretly afraid of contagion, she had been experimenting on herself believing that if she could find a prevention, she would find a cure.

After a trip to the oncology lab and her introduction to the work of Alexander Flemming, the father of modern medicine and antibiotics, Cat's strategy began to change. Now she collected for preservation. Second grade science fair was announced and she chose as her topic the preservation of tree fungus. Perhaps it was curative. She would no longer eat her specimens, but she could save them for future testing once she was allowed to work within the lab. "Fungus for the Future", a study of preservation methods for fungi, won second place at the fair and fueled Cat's search for answers.

Sadly, Catherine died the following year and Cat's search was over. Time had run out to save the most important person she would ever know. Cat was devastated. In her mind, the now eight-year-old child had failed to save her friend. She had given everything, lived and shared her suffering until the very end, and even risked her own life to save her. At the final services honoring Catherine's life and courage, on tiptoe, Cat kissed Catherine good-bye and told her that she was sorry that she was too young to save her. Her empathy touched us all.

Derived from the Greek word, "empatheia", empathy translates literally as a "feeling into". Eighteenth century German aesthetics used the word empathy as meaning to project feeling into a piece of art or something with physical beauty. The keen or educated observer could later recapture such imposed feeling instilled by the artist. The term was later borrowed to form its more modern meaning as the projection or capture of feelings between individuals.

Defined as an active state, in 1949 Dymond described empathy as the ability to assume the role of someone else and accurately predict the feelings, actions, and thoughts of another. (from Mehrabian, Young, & Sato, 1988) In his book, *Empathy: A Social Psychological Approach*, Davis (1996) describes empathy as cognitive role-taking and affective reactivity. He divides empathy into four related constructs of antecedents, processes, intrapersonal outcomes, and interpersonal outcomes. Kurdek & Rodgon (1975) view empathy as a complex of skills, rather than a singular one. Still, all agree that empathy requires the advanced ability to assume another's viewpoint, assess another's knowledge, and construct the emotional state of someone else. Simply put, empathy is the ability to feel another's emotions, and react to them in a meaningful way.

Increased sensitivity, often seen in gifted children, is a result of their **rapid cognitive ability** to process great amounts of information on a multi-sensory level.

Increased sensitivity, often seen in gifted children, is a result of their rapid cognitive ability to process great amounts of information on a multi-sensory level. In physiological, mechanistic terms, the gifted take in more data and more data types at a single time, sort and order it quickly, then resort and process it as more data becomes available (Clark, 1997). The ability is innate in that density of dendritic connections within the brain allows for more firings and more interdisciplinary connections to be made. The ability is also learned as the child experiences and hence constructs more schema and schematic networks upon which to build (Kagan, 1970). Advanced language ability, especially the ability to name emotions and use words precisely also aids the gifted child in empathic development (Smutny, Walker, Meckstroth, 1997).

As Cat visited Catherine daily, she assumed her perspective to anticipate her needs. She was absorbing both verbal and non-verbal information and processing it to fit her changing worldview. Cat knew for years that her grandmother's death was coming. She knew that Catherine was in increasing pain as time passed. Cat's empathy was more than a prediction based on probability, the two literally shared purpose, action, and thought.

As a parent of a gifted child parent, I was aware of my daughter's remarkable empathic skill and her deep emotional attachment. I worried daily that Cat's relationship with Catherine would inevitably result in her broken heart. No parent wants to see a child experience pain, and I knew before Cat's birth that Catherine's condition was terminal. Parenting Cat required a trust in myself, in her, and in my parents skill to monitor her exposure to the most frightening aspects of a declining medical condition. We were in constant dialogue, taking one day at a time. In the end Cat was changed in ways I would never have seen had she not known Catherine or experienced the loss of her friend and mentor. For us, this was the right decision.

Honesty and respect for the child is an important part of parenting. Gifted children expect and deserve honesty from their parents and their environment. Their brains are literally wired for rapid input and classification. Honesty allows them the ability to sort and integrate information accurately. More than academic facts, Cat learns daily from her surroundings, the things her family shares with her, and our reaction to our lives' events. The decision to be always honest with Cat has to be balanced with her emotional capability to integrate the information in a healthy, pro-growth way. Both Cat and Catherine were honest with their hopes and their fears for themselves and for each other. Their mutual respect and love permitted the option for growth.

Poet and philosopher Kahlil Gibran said that our children are but the arrows we send forth. They find their own destination. I could not have stopped Cat from finding her way or Catherine from forming a path for her. I believe it will lead her far and well.

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(from MCINTIRE, page 3)

many non-members who work in our field, and a multitude of parents, grandparents, business owners and future retirees hoping for an economy that can support them are natural allies. It's not important that TAGT get all the best opportunities, get all the credit it deserves, or even that we survive if we don't do good work. What's important is that we all keep our eyes on the one goal of improving opportunities for all children and youth who exhibit potential for excelling. If we carefully examine the fences keeping us from advancing, determine where our opportunities lie even if they are not the ones we dream of most, and all target our efforts at the same critical points in the system. We and our students will advance.

Let's take this time as we prepare for a new school year to look around us for the opportunities that exist today, to identify the people who also seek to break out of the pasture, put our heads together, and push. I've heard all about pushy g/t teachers and pushy parents of g/t kids. I'm proud to be in Texas as your executive director of TAGT. I believe this can be a very Pushy organization and that Texas will be the better for it.

Parents and Classroom Teachers Wanted

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(from SMUTNY, page 1)

role to play in her son's education.

> Most people who know Paul think he's a quirky little kid with his head in the clouds. He's extremely creative—always inventing stories and games, and engineering little contraptions from bits of metal and wiring that my husband has in his auto shop. Going through Paul's knapsack one day, I discovered that he had filled a notebook with elaborate sketches of imaginary machines. They were amazing sketches, but when did he find time to do them? Whenever I asked about it, he looked a little sad and said that he sketched by himself while the other kids were in class. After some investigating, I discovered that the teacher was giving him a lot of time-outs—too many! It was a wakeup call to me that general supportiveness is not enough when you're dealing with an unusual child like Paul. From that time, I've become my child's protector—not in the obsessive mother way (I hope!), but in the sense that I know I have to help him negotiate some of the pitfalls that come his way.

Part of the challenge gifted children face is that their abilities make them appear more in control of their lives than they really are. An advocate for gifted children is someone who clearly understands several important points:

- Despite their extraordinary insight and intelligence, gifted children can exhibit remarkable blindness when it comes to their own ability and achievement; in many cases they sabotage themselves and thus become their own worse enemy;

- There are forces and pressures—from society, home, and school—that make gifted children vulnerable to underachievement and a low self-esteem;

- Gifted students need adult *defenders* or advocates who give them the strength and resourcefulness to meet challenges with some measure of confidence.

The teacher in the previous story took on the role of advocate, defending her from the pressures she felt and the fear of reprisals and rejection that kept her subservient to her peers. In the second example, six-year-old Paul also needed someone to take a stand for him at a time when he was too young to comprehend what was happening and vulnerable to the negative effects of a punishment he didn't understand.

This article outlines strategies that parents and teachers can use to advocate effectively for gifted students. The ultimate goal is to not only give these children the education and support they need to realize their potential, but to nurture within them the capacity to stand up for themselves.

Communicating on Behalf of Gifted Students

Advocacy begins with communication. I have seen parents and teachers create substantive changes through their resourcefulness and ability to communicate and collaborate with each other. What follows is a guide, based on my individual experience with both parents and teachers:

For the Parent

- Expect the teacher to be reasonable, no matter what you've heard from other parents or your child. Even teachers unsympathetic to gifted students respond better to parents who approach them positively than to those who are already on the defensive.

- Start by thanking the teacher for giving you time to talk about your child. Teachers have never been more burdened with extra responsibilities than now. Any expression of appreciation at the outset will help your cause.

- Always begin your communications with the teacher. While relationships can always be patched up later, it's best to avoid even the appearance of going behind a teacher's back. Only if the teacher proves unwilling to help in any way should you turn to the principal or someone other than the teacher.

- Get straight to the point. State the reason why you felt it necessary to meet with the teacher and say it in a diplomatic way. For example, instead of saying, "My son is really bored in your math class" try this: "My son already knows this material in math and since he really loves this subject, I wondered if we could discuss other options for him in math."

- Listen carefully to what the teacher says. His objections to certain requests aren't necessarily rejections. Keep pressing for other options and have some ideas of your own. If he says, for example, "I have no time to create a separate set of activities for your child," offer to work as a partner. If he argues that your child has been inattentive, sloppy in her work, or misbehaving, don't automatically interpret this as a criticism. Say something like, "I'm sorry if she's not been following rules and I'm happy to work with her on that. But could you also allow her to spend more time doing some independent projects when she's finished her work?"

- Work for a consensus. Your goal is to find a solution for your child. Try to find some common ground. Be flexible in areas where you can be flexible, but firm on the points that really matter. If your child is working at a third of his capacity, it is unjust for him to sit in his seat day after day learning almost nothing. But you might be able to be flexible in negotiating how changes are made. For example, the teacher may not be able or willing to offer an alternative curriculum, but may be able to talk to the principal and other teachers about letting your child attend a higher grade in some subjects.

- Have a timeline for follow-up steps. Without some agreement about when certain things will happen, chances are, they won't happen. If the teacher says she'll talk an issue over with a principal, a curriculum coordinator, or anyone else, ask for a time when this will be done. You should also provide deadlines for your promises as well.

- Follow up on whatever promises or agreements you have made and stay in touch with the teacher on his or her promises.

For the Teacher

- Agree to meet with the parent at a time when you feel the least pressured (e.g., end of the week). If you squeeze the parent in when you are already feeling burdened, he or she will automatically be another burden to you.

- Be aware of your own attitude about gifted students. Do you think too much is made of them? That they have no real needs? Do you think all parents think their kids are gifted? Be aware of these biases and how they may influence your response.

- Be sensitive to the parent's concerns. Helping the parent will enable you to help not only this child, but other gifted students in your room. Parents of gifted children only want what every other parent wants—for their children to learn at the level of their ability. If you dismiss their concerns outright, they will think you are turning a blind eye to a real problem and this will only increase misunderstanding.

- Before meeting with the parent, review your own observations of the child's performance, including tests, class assignments, and any insights from your daily interactions.

- Make some notes to yourself on what you need as a teacher in order to help a gifted child. What are your time and resource constraints? Do not feel that you have to do all the work. Examine areas where you can do more and areas where you need assistance.

- Focus on the needs of the child. If you're a teacher who is advocating for a gifted child in a case where parents are unaware of their child's talents and uninformed about giftedness, discuss the special needs of gifted children in an assuring way. Suggest resources for them to learn more about it (see end of this article).

- Explore what can be done to provide more challenge and support for the gifted child with the idea of creating a partnership with the parent. Teachers are used to assuming a great deal of responsibility and this sometimes makes them feel resentful of anyone who asks for extra help. You can avoid this by suggesting ways that parents can help as well. If their child needs more advanced work in math and science, for example, what are parents willing to do to help the teacher structure this (e.g., through contract learning where parents can monitor the child's progress at home and help keep track of weekly assignments, etc.). Would they be willing to work with a small group of gifted students in content areas where they have expertise?

- Do not promise more than you can deliver. Clearly communicate the demands on your time and the resources you have and work from there. Show the parent that you are willing to do all you can for the benefit of the child, but that the constraints on your time and resource demand that they also take an active role in the process.

- Be open to the possibility of gifted children in your classroom. Many teachers have discovered that gifted students can be a wonderful resource in their classrooms (e.g., as resident experts in certain areas, as catalysts for creative activities in the curriculum).

After a parent-teacher conference has concluded, the question is: What did it accomplish? Here is a useful list of criteria for determining how well the meeting went (adapted from *Stand Up for Your Gifted Child* by Joan Franklin Smutny 2001, pg. 109):

- the child was the main focus, not the opinions or agenda of parent or teacher

- both parent and teacher listened to each other and considered each other's point of view

- the parent and the teacher negotiated for solutions that would meet the student's needs without disregarding the teacher's other classroom responsibilities or the parent's knowledge about his or her child

- both parent and teacher came to an understanding on how to proceed even if they had different opinions

- both agreed to work on a solution that would help the child and to continue working together

- both made commitments and scheduled actions.

Both parents and teachers can be resources in this process and can explore as many possibilities as they think will benefit the child. For example, would the school accept other evidences of talent and ability than standardized test scores? Can the child be placed in a higher grade for certain subjects where she has special abilities? Could she spend a morning or day at home once a week to work on projects that interest her? What possibilities exist for mentors or special tutors in some subjects? Would the parent be willing to work with a small group of gifted students on independent projects? Could the parent and teacher plan an in-service at the school to raise awareness of gifted students in the school and to learn new strategies for teaching gifted students in the regular classroom?

Exploring other options.

Conferences between parents and teachers do not always work. Sometimes teachers oppose gifted education because they think it's elitist or feel pressured by their regular responsibilities and cannot consider any other demands. Other times, parents pressure their child with unrealistic expectations of what they think he should accomplish, or, on the other side of the spectrum, they may struggle with larger family problems that make their gifted child less of a priority.

If parents and teachers find it difficult to communicate, they can move on to other options. Here are examples:

For Parents:

- Move up the ladder of the school hierarchy. The next person to address may be: the gifted coordinator, the curriculum director, the assistant principal, the principal. If none of these prove receptive, then go to the superintendent.

- Find out if there are any parent groups in your area. Contact your state gifted association for this information. Start talking to other parents and find out if others feel as you do. Parent groups are highly effective at getting things done and they can provide moral support as you continue to advocate for your child.

- Explore gifted programs *outside* the school. These may be sponsored by a local university or institute. The Center for Gifted at National-Louis University, which I founded, offers programs year-round for approximately 3,000 children in the Chicago area, age four through grade 10.

- Locate an outside mentor for your child in an area of her particular interest. Look at universities, visual and performing arts studios, and personal contacts.

- Supplement your child's education as much as possible at home. Spend time with him exploring subjects that he loves (use internet sources); seek out materials that will stretch his imagination and thinking.

For Teachers:

- Confer with a specialist in gifted education for ideas on how to provide more support for a gifted child (see list of possible sources at the end of this article); attend conferences, lectures, and consult books;

- Talk to your principal about having an in-service on the special needs and challenges of gifted students in the regular classroom;

- Integrate teaching strategies that work well for gifted students; examples would include tiered instruction, cluster grouping, compacting, creative activities, differentiation, independent study, and use of the arts;

- Network with members of a parent group to learn more about the problems gifted children have in the regular schools and what can be done about it.

These lists are by no means comprehensive. They merely provide examples of how a parent or teacher can continue to work on behalf of gifted children when their initial attempts to communicate yield no results.

Enabling Gifted Students to Advocate for Themselves

A point I emphasize in sessions for parents and teachers is that we as adults are always showing our children how to respond to challenges—whether we realize it or not. Adults who struggle with perfectionism, who feel tense or frustrated whenever things don't go their way, tend to communicate this to gifted children. On the other hand, parents and teachers who are resourceful, creative and resilient in meeting each difficulty that comes along strengthen their students and children in dealing with their own problems. A gifted high schooler I know commented:

> Sometimes kids get on my case for being so "up." They ask, "How come you always think things are going to work out?" Actually, I don't always think that. But for sure my parents—especially my mom—make me feel like there's always some way to solve a problem. It may take a while sometimes. It may not come out just as I'd like every time. But whenever I'm freaked about something I know that I can sit down with one of them and we can talk it through and figure out what to do. I just don't see problems in such a dramatic way as I used to.

Parent and teacher advocates who have made a long-term impact are those who target the areas where gifted children tend to sabotage themselves. True advocates understand that to survive the challenges that face any gifted child in our society and to become resilient and resourceful in meeting them, parents and teachers need to instill a strong sense of self-worth. The following list provides a map of the areas where gifted children need specific support (adapted from *Stand Up for Your Gifted Child* by Joan Franklin Smutny, 2001, pgs. 43-45):

- Show gifted children that you love and accept them for who they are and that your support for them is independent of what they achieve.

- Help gifted children set realistic goals. Show them how to break large projects into small, manageable steps. Reassure them that learning gaps can be addressed and let them know when they're expecting too much of themselves.

- Work with gifted children to make them feel more comfortable about mistakes, to accept mistakes as part of the learning process. Acknowledge your own mistakes.

- Teach the value of patience! Patience with the process of learning and with their growth and development.

- Remind gifted children that nobody's perfect and nobody's good at everything—not them and not you.

- Applaud the efforts of gifted children. Encourage process over product and what they learn rather than what they produce.

- Celebrate creativity at every turn. Emphasize the importance of their innovative, unique responses to an assignment rather than the "right" answer that will get them an "A."

- Use praise discerningly. Don't lavish praise for excelling or dwell on their achievements. Excessive praise has a tendency to make the gifted define themselves by their achievements. Nothing is more damaging to the development of a gifted child than the inner conviction that what he does is more important than who he is as a person.

- Point out positive actions that have nothing to do with ability. Commend gifted children for taking risks, even when things don't turn out the way they planned. Focus on efforts as successes in themselves. Notice appropriate ways of handling failure and thoughtful interactions with other people.

- Involve gifted children in activities that are not graded or judged. Invite them to do things "just for fun."

- Help them plan for challenges. When gifted children are about to start something new, help them to talk through what might go wrong and what they'll do if that happens. Many gifted children have overactive imaginations and worry excessively about potential mistakes, humiliations, or failures they may experience. They need to talk them through and brainstorm how they can handle different situations that could arise.

- Help gifted children distinguish between what does and doesn't call for their best efforts. Which things require the greatest investment of time and energy? Which things simply need to be finished—to be "good enough?"

- If they don't like what they did, help them understand why. Rather than dismiss their feelings ("What do you mean you don't like your poster? It's wonderful!"), listen to what they say. Help them explore how they might do things differently in the future. ("Do you think you could do more sketching in pencil next time, before you paint?")

- Discuss the progressive and positive aspects of their work. Many gifted children focus on what's wrong with their assignment or project. Provide specific feedback on what you find exceptional. Encourage them to talk about what they like in their own work. The more specific you can be in providing feedback, the better. Gifted children respond much more to specific statements (e.g., "The opening of your story pulls the reader into the action right away; I really liked that; you could tighten your story by doing the same thing later on....") rather than ("This is a great story" or "You write so well!").

- Encourage humor in gifted children. Most of them have it inside them, but they can lose touch with it through all the pressures they feel. Help them lighten up about things that don't go their way.

This dimension of advocacy is vital to the future growth of gifted students. Far more than an intervention for better education, it prepares them for life itself. It teaches our most promising children how to become their own best advocates.

A Final Note

We know that most gifted children in our country attend schools that have modest funds for gifted education or the knowledge and expertise to develop their talents. At present, therefore, the responsibility must fall on teachers and parents to become advocates for gifted children and develop ways to meet their special learning needs. Networking as a team enables both teachers and parents to become more effective advocates and to develop alternative educational programs suited to these children's unique strengths and learning styles. Certainly, the potential loss of talent should concern all of us and become a rallying call for collaborative effort and action for the future.

If I could give advocates for gifted children only one piece of advice, it would be this: never underestimate your power. Determined parents and teachers have made gifted education what it is today. Individually, you can bring profound changes to these children's education, even if they are small, incremental ones at first. Also, the process of advocating for them will teach them the value of determination and creative problem-solving—skills all gifted children need to cope with the obstacles they will have to face throughout their lives.

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WEB SITES

- **Gifted Children Monthly** www.gifted-children.com

An offshoot of Gifted Children Monthly, an award-winning newsletter for parents of gifted children.

- **GT World** www.gtworld.org

An online support network for parents of gifted and talented children.

- **Hoagies' Gifted Education Page** www.hoagiesgifted.org

An extensive online resource for parents and teachers on a range of subjects related to giftedness.

- **TAG Family Network** www.teleport.com/~rkaltwas/tag

An organization run by and for parents of gifted children.

ORGANIZATIONS

The Center for Gifted
National-Louis University
2840 Sheridan Road
Evanston, IL 60201
847-256-5150, Ext. 2150
www.centerforgifted.com

Council for Exceptional Children
1110 North Glebe Road, Suite 300
Arlington, VA 22201-5704
1-888-232-7733
www.cec.sped.org/index.html

ERIC Clearinghouse on Disabilities and Gifted Education
1110 North Glebe Road
Arlington, VA 22201-5704
1-800-328-0272
www.ericec.org

National Association for Gifted Children
1707 L Street NW, Suite 550
Washington, DC 20036
202-785-4268
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What the Research Says About Advocacy

Susan K. Johnsen
Sarah Feuerbacher

Swassing and Holcomb (1992) describe advocacy as a way of making decision-makers and stakeholders aware of the policies that mitigate for and against appropriate education for the gifted. Advocates may act as individuals or as a group, speaking for themselves or as intercessors on other's behalf. They may be spontaneous or organized, systematic or random. However, they are always involved in educating legislators, administrators, teachers, and the general public about specific issues that may influence gifted children and their education (Rosenstein & Dettmer, 1991).

Using this definition, this review examined advocacy articles published since 1991 in *Gifted Child Quarterly, Gifted Education International, Journal for the Education of the Gifted, The Journal of Secondary Gifted Education* and *Roeper Review*. To be included, the article needed to focus primarily on the process of building advocacy rather than on the advocate's target—specific issues or services. All articles that addressed advocacy were included, even those that were primarily descriptive in nature. These selection criteria identified only 16 articles. This small number may result from the priorities identified by gifted educators and researchers. In a Delphi study, Dettmer (1991) discovered that advocacy was ranked in *last* place among twelve gifted issues needing attention.

Karnes and Riley (1997) found strong support of gifted education within one state with 89% agreeing that gifted students had equal educational rights and 76% agreeing that gifted students needed a different education. Nationally, the Gallup Organization also reported strong public interest for supporting gifted programs, especially when the quality of regular classroom education is not reduced (Larsen, Griffin, & Larsen, 1994). While the public wanted schools *to do more*, they did not necessarily want their state *to spend more* on gifted education. To identify specific characteristics of advocates, those who are positive toward gifted programs, Begin and Gagné (1994) did not find any single variable that influenced perceptions toward gifted education; however, those who perceive themselves as gifted, intelligent or more academic did have a slightly more positive attitude.

Specific advocacy strategies included making inside contacts, learning what is newsworthy, and distinguishing between form and content (Alvino, 1991). Alvino (1991) encouraged organizations to find someone or some organization with the power or image to carry the cause. Effective educational partnerships appear to take time and must have a clearly defined focus, specific outcomes, and sustained and systematic communication (Shaklee, Padak, Barton, & Johnson, 1991; Swassing & Holcomb, 1992).

Researchers believe that certain program designs, involvement of a broad base of individuals, or becoming a part of general education reform issues may build advocacy for gifted programs. For example, Renzulli and Reis (1991) mention that inclusion—extending services to a more diverse group of students—builds support. In fact, Irvine (1991) found that inequities in access to programs and difficulties in assuring program quality were negative factors and affected mandates for gifted education. Other researchers have reported that building coalitions among education, government, and corporations advance gifted education (Dettmer, 1991; Ross, 1991; Schatz, 1991; Shaklee, Padak, Baron, & Johnson, 1991; Ridges, 2000; Swassing & Holcomb, 1992; Todd & Larson, 1992). In joining district and state committees, gifted educators will be able to obtain knowledge about current discussions that may transform services for

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gifted education (Ross, 1991). Similarly, Treffinger (1991) Gallagher (1991), and Ross (1991) noted that gifted educators must become more involved in school reform movements such as accountability, excellence, site-based management, and multi-age grouping. Treffinger concludes that "current efforts to improve schools and to work actively toward excellence and effectiveness . . . should be viewed as a powerful 'platform of opportunity' for gifted education, not as a threat to dilute or 'water down' our mission and goals" (p. 11).

Alvino, J. (1991). Media relations: What every advocate should know about the tricks of the trade. *Gifted Child Quarterly, 35,* 204-209.
This article examines how the use of media technology can enhance advocacy efforts for gifted education and programs. Alvino provides three rules for public relations: make an inside contact and maintain it; learn what is newsworthy; and learn the distinction between form and content. The author provides insightful information, helpful tips, and strategies for using different media forms: news releases, features, magazines, journals, newsletters, radio, television, and news conferences. Alvino also introduces his Driver-Rider Matrix as a strategy for enhancing the image of an organization. "Piggyback on the reputation, image, or marketability of someone or some organization (the driver) with the power to carry or 'transport' your cause (the rider) to prominence in the public or professional eye" (p. 205).

Begin, J., & Gagné, F. (1994). Predictors of attitudes toward gifted education: A review of the literature and a blueprint for the future research. *Journal for the Education of the Gifted, 17,* 161-179.
Begin and Gagné offer potential predictors of attitudes regarding gifted education so that new enrichment coordinators might identify individuals who may be more prone to resistance or opposition. Over fifty different variables from thirty-five studies were analyzed to identify twenty-seven characteristics that might share a common denominator or pattern. Overall, the study found that those who perceive themselves as more academic, intelligent, or gifted and talented presented a slightly more positive attitude towards gifted students and programs. However, no single factor or variable was found to be statistically significant and substantial in determining a person's attitude toward gifted and talented education. Recommendations are provided for future studies.

Dettmer, P. (1991). Gifted program advocacy: Overhauling bandwagons to build support. *Gifted Child Quarterly, 35,* 165-172.
After a Delphi study found that advocacy was ranked in last place among twelve gifted issues needing attention, Dettmer expressed a need for "advocates for advocacy" so that gifted and talented education might gain a lasting place in all public school education. The author lists these focus areas for gifted and talented advocacy: (a) promoting gifted education judiciously, (b) developing support among many different role groups, and (c) strengthening support levels within the role groups. A list of political, educational, and community groups are provided for building advocacy partnerships. A diagram of advocacy stages and a summary of key points are added to help build gifted program support.

Gallagher, J. J. (1991). Educational reform, values, and gifted students. *Gifted Child Quarterly, 35*, 12-19.
Gallagher discusses the current education reforms and how each might effective the education of gifted students. These reforms include the excellence movement, cooperative learning, the middle school, the master teacher, site-based management, and accountability. He suggests that educators of gifted students need to be proactive in informing educators and parents about how these reforms might be shaped for the benefit of all students.

Irvine, D. J. (1991). Gifted education without a state mandate: The importance of vigorous advocacy. *Gifted Child Quarterly, 35,* 196-199.
Using New York as an example, Irvine discusses positive and negative factors influencing state mandates for gifted education. The use of vigorous advocacy groups, financial incentives, mandatory screening for giftedness, and educational reform are all factors that promote the development of programs

for gifted students. Some negative factors associated with the lack of a mandate include inequities in access to programs, difficulties in assuring the quality of programs, and limited access to teacher preparation programs. The author concludes that although progress can be made without a state mandate through the use of incentives, leadership, and advocacy, a mandate can more rapidly reduce the circumstances that are likely to deprive students of gifted and talented education and opportunities.

Karnes, F. A., & Riley, T. L. (1997). Determining and analyzing public support for gifted education. *Roeper Review, 19*, 237-239.

This state survey was conducted by calling 400 households. The majority of those surveyed were female (67.5%), white (72.4%), and older than 35 (60%). The researchers found strong support for gifted education: 55% of the respondents said they knew a gifted child; 80% said that giftedness occurred across socioeconomic and racial groups; 76% agreed that they needed a different education; 89% agreed that gifted students had equal educational rights; 82% supported establishing programs at the preschool level; and 74% agreed that teachers needed specialized training. In terms of economic benefits to the state, 74% of the respondents agreed that the future of the state depended upon providing gifted students with educational opportunities and 80% agreed that businesses outside the state would be attracted by good educational programs for gifted students. However, 83% also believed that gifted students were more likely to leave the state upon completion of high school and college.

Larsen, M.D., Griffin, N.S., & Larsen, L.M. (1994). Public opinion regarding support for special programs for gifted children. *Journal for the Education of the Gifted, 17,* 131-142.

This study examined the debate regarding the devotion of resources and development of services to gifted and talented students in the public school system. The purpose of this survey was to inform policy makers at local, state, and national levels about the opinions of the general American society. The Gallup Organization conducted a telephone survey of 1,000 adults: 844 were parents of school-aged children and 297 were parents of children identified as gifted and talented. Surveyors reported that the public supported gifted programs, especially when the quality of regular classroom education is not reduced. One-sixth of those surveyed supported allocating more funding for special programs for gifted students. However, in general, there was more support for "doing more" than "spending more," with over 60% wanting the schools to do more for gifted and talented programs. The authors conclude that the results should encourage local and state legislation to differentiate more for all students.

Renzulli, J. S., & Reis, S. M. (1991). Building advocacy though program design, student productivity and public relations. *Gifted Child Quarterly, 35*, 182-187.

This article examines the process of building advocacy through the development and implementation of programs. A case study is given as an example of an effective approach to advocate for appropriate gifted and talented services. The author defines an efficient program design as building advocacy through inclusion, extending services to a more diverse group of students, and extending technology to all members of the faculty, not just gifted teachers. Successful gifted programs also have the following key features: longevity, administrative support, gifted program leadership, policy adoption, program design and organization, school ownership of the program, prior evaluation reports, and sustained public relations efforts.

Ridges, J. (2000). Advocate role in developing district policy for gifted students. *Roeper Review, 22*, 199-201.

A teacher describes how parents and educators formed a coalition to bring programs for gifted students to their school district. The coalition organized groups for students, coordinated parent volunteers, formed information sessions with college professors, lobbied the State Board of Education, and worked with the School Board in hiring a person who might coordinate the gifted program. After the state legislature allocated money for districts to use in developing gifted programs, the district developed magnet programs, honors classes, AP classes, and a schoolwide enrichment model in the elementary schools. Eventually the district adopted policies with assessment and evaluation as integral components. The program has been sustained for over 20 years.

Rosenstein, P., & Dettmer, P. (1991). Advocacy for gifted programs: An Interview with NAGC executive director Peter D. Rosenstein. *Gifted Child Quarterly, 35,* 179-181.
Executive Director of the National Association for Gifted Children, Mr. Peter Rosenstein, responded to Peggy Dettmer's questions regarding advocacy efforts for programs for intellectually gifted and creative children. Advocates must be clear about facts vs. opinions about gifted education, major oppositions to gifted and talented programs, and how to initiate and continue activities. Rosenstein also answered questions regarding the role of lobbying in advocacy, how professional organizations can help advocacy efforts with legislators, and how the business community can be involved in future advocacy programs. While education is at the forefront of United States objectives, Rosenstein believes that gifted educators can have an impact.

Ross, P. O. (1991). Advocacy for gifted programs in the new educational climate. *Gifted Child Quarterly, 35,* 173-176.
Ross expresses in this article that knowledge and access are keys in gifted and talented advocacy. She encouraged gifted educators to join district and state committees in order to obtain knowledge about current discussions and become active participants in efforts to transform services for gifted education. Some new initiatives, which might make a contribution to gifted education, include ungraded primary schools, assessment of student progress, student portfolios, and rigorous and revamped curricula. Ross believes that it is a vital duty of the gifted educator to be an integral part of task forces and committees that are involved in reform to shape and support school improvement for gifted students.

Schatz, E. (1991). Dissemination by design: A tool for advancing gifted education. *Gifted Child Quarterly, 35,* 188-195.
The Wisconsin Richardson Conference, comprised of eighty education, corporate, community, and government leaders, focused on strengthening a gifted and talented advocacy leadership force through ongoing collaboration and dissemination. Using the creative problem solving process, the initial conference identified problem statements in each of ten different areas. Four regional follow-up conferences were held to discuss goals and plan future regional conferences. Each of the conferences adhered to these principles: create a critical mass, encourage a safe environment for exploration; and offer an open-ended task that would enhance movement toward the mission or end.

Shaklee, B. D., Padak, N. D., Barton, L. E., & Johnson, H. A. (1991). Educational partnerships: Gifted program advocacy in action. *Gifted Child Quarterly, 35,* 200-203.
These authors expressed the importance of forming educational partnerships for advocacy purposes to ensure that appropriate representation and services for gifted students are embedded within school reform frameworks. The article identified critical elements of successful partnership development and assesses the strengths and weaknesses of the example collaboration, Cooperation Alliance for Gifted Education, which was designed to enhance gifted and talented educational opportunities in an urban setting. Themes that emerged in the development of successful partnerships included having a clearly defined focus, specific outcomes, and sustained and systematic communication. For educators and advocates who are interested in developing a similar partnership, the authors offer step-by-step instructions for creating a Joint Partnership Advisory Council.

Swassing, R. H., & Holcomb, P. A. (1992). Ohio in brief: The commission on the future of gifted education. *Roeper Review, 15,* 41-42.
This article describes advocacy groups in Ohio. The advocacy group was initiated by the Ohio Department of Education's Consultant for Gifted Education, the president of a local school board and the president of Ohio's Association for Gifted Children. Eventually eleven different groups were involved in a state commission including the Board of Education,

superintendents, senators, representatives, university faculty, parent and teachers associations, school boards, school psychologists, school administrators, school coordinators of gifted programs, and business leaders. The Commission was helpful not only in advocating for gifted students but also creating a better understanding among members about issues, identifying common goals and concerns, hearing other perspectives, and providing contacts for persons needing accurate information about gifted education.

Todd, S. M., & Larson, A. (1992). In what ways might statewide advocates for gifted and talented education coordinate and focus their efforts? *Gifted Child Quarterly, 36,* 160-164.
This article examined the state of Utah and its development of a statewide advocacy design that provided universal coordination, organization, focus, and direction on behalf of gifted and talented students. A step-by-step process is included demonstrating the Utah Association for Gifted Children's use of the creative problem-solving process in order to foster advocacy for the gifted and talented in formulating goals and missions. The authors conclude that the impact of this coordinated advocacy effort was immediately noticed through improvement in services for gifted children, better in-service training for educators, and more focused policy at the state level. This example of creative collaboration strategies may be useful to other states in meeting their own advocacy affairs.

Treffinger, D. J. (1991). School reform and gifted education—opportunities and issues. *Gifted Child Quarterly, 35,* 6-11.
This is an excellent "how to" article for gifted and talented advocacy, with many lists, bulleted points, and diagrams which advocate for the inclusion of gifted and talented education in school reform. The author discussed implications of studies of excellence for gifted and regular education, and included a teacher checklist and self-study questions for excellence in a classroom climate. School reform and school improvement implications are listed and discussed as a "powerful platform of opportunity for gifted education" (p. 11).

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Book Reviews

AND STILL WE RISE by Miles Corwin. New York: William Morrow, 2000.

On several occasions, a truly fine book I might have never otherwise discovered has come to me by way of a recommendation. Anytime someone describes a book with excitement in his or her voice, I take note. When I receive recommendations of the same book from two or more people, I note it down and check into it at the first opportunity. A few I choose not to read, but most I do. Invariably, I am glad I did. In this manner, I have made the acquaintance of numerous fine authors, fascinating characters, intriguing plots, and provocative facts and thoughts. While *And Still We Rise* was recommended to me only once before I picked it up, it definitely belongs on my "Glad I Found This" list.

Miles Corwin, a reporter for the *Los Angeles Times*, spent a year following a dozen seniors enrolled in the gifted program of Crenshaw High School. He was intrigued by this group of highly intelligent individuals, seeking to complete school in one of the toughest urban neighborhoods in the nation. Crenshaw is located in South-Central Los Angeles. The student body comes from the inner-city neighborhoods of South Central and Watts. All the students in the Crenshaw gifted program are minorities; most of them are African American. Crenshaw has one of the few all-minority, gifted public high school programs in the nation.

Corwin's book begins with a homicide and ends with a high school commencement. His principal focus is on the group taking Advanced Placement English Literature and Composition. He spent the 1996-97 school year attending classes, observing the students in the learning environment. As a counterpoint, he also observed the junior English gifted class.

However, Corwin does not construct a single narrative. He assembles his story in an episodic and elliptical manner around different individuals. Each chapter utilizes one person as its central focus. Chapters usually begin with events from the year and then diverge into a development of the history and perspective of that individual. The reader learns about their childhood, their families, and their struggles. Almost without exception, these students daily deal with broken families, foster homes, jobs, children, and survival, in addition to facing the challenges of preparing for AP exams and obtaining entrance into college. Most chapters belong to the students, though the two English teachers also receive their own sections. This somewhat fragment approach actually gives the account strength, building depth while maintaining the readers' interest.

The book opens with Olivia, who remembers her mother's last words to a court, "I don't want her." Made a ward of the county, Olivia journeys through a series of foster homes, ten by the time she is sixteen. As a senior, Olivia struggles to escape this cycle of frustration, striving to become independent. Her attempts to work, maintain a car, live with some measure of independence, and stay in school reach a crisis point when her creative interpretations of circumstances land her in court. And hers is only one of the dozen tales told.

So much of what Paul Slocumb describes in his work (2000). *Removing the Mask: Giftedness in Poverty*. Highlands, TX: RFT Publishing Co.) is the daily reality of these students. The chapters recount students working to have food and clothing or feed their children, students who have been beaten, students who have witnessed parents killing parents, students who have been sexually abused, students who cannot accept the offers to attend prestigious universities because they cannot afford the tuition.

Paralleling the stories of the students are those of two gifted teachers. Toni Little, who teaches the senior AP English class, travels an erratic path through the year, fluctuating between periods of brilliant instruction and extended sessions of personality struggles with the administration. Anita "Mama" Moultrie, a more stable figure, follows her conscience to include black writers and themes into her course, at the potential cost of better AP scores. Neither are plaster saints nor simple villains, but rather themselves highly complex individuals who influence the lives of these gifted children.

And Still We Rise is more thought provoking and troubling than uplifting. I cannot say it has a happy ending. However, I also did not find it disheartening. While saddened by the failures and, even more, by the missed opportunities recounted, I finished the book inspired with the resilience in all these individuals, from Olivia to Miss Little.

Corwin entitles the final chapter "Graduation." Danielle speaks as the class valedictorian.

> *We are a class of survivors. We survived the loss of affirmative action. We survived the O. J. Simpson trials . . .but most importantly, we survived the scrutiny of our potential by this society that labeled us failures . . .I am reminded of a poem I was once taught by my kindergarten teacher, Mrs. Hunt, a poem by Maya Angelou entitled, 'Still I Rise,' only, in this instance, the more appropriate title would be, Still WE Rise. (397)*

Corwin says, "This is journalism, and I attempt to present what I observed in a fair, unflinching manner." *And Still We Rise* is not an analytical study. It is not a report or graduate research project. It is more gritty reality. Yet, I think it will leave any reader with much new food for thought about gifted students of color in poverty.

—review by James Collett

Stand Up for Your Gifted Child: How to Make the Most of Kid's Strengths at School and at Home

by Joan Franklin Smutny. Minneapolis: Free Spirit Press, 2001.

Earlier this summer, I received a telephone call from the parent of a gifted child. She was desperately searching for information that might help her child and was at a loss as to where to turn. This is often true of parents who are outside of the educational establishment and have no contact with other parents of gifted chldren. If I had to recommend one book to the parent of a gifted child, I would start with *Stand Up for Your Gifted Child.*

This book is divided into three parts: "Starting at Home," "Going to School," and "Moving into the Community and Beyond." Every chapter in each part begins with the words, Advocacy is . . ., which is a constant reminder for the reader of their purpose and role.

In the first part, "Starting at Home," there are chapters on understanding the concept of giftedness as well as understanding the individual child's particular gifts. The areas of friendships (and families, and feelings) and discipline are addressed as well as the importance of providing a haven of learning in the home.

Part Two focuses on the child at school. In addition to information on the field of gifted education, there are ideas, directions, and suggestions on dealing with the school, especially the teacher. The suggestions for preparing for a conference with the teacher is worth the price of the book.

In the last part, the focus shifts to the larger community: connecting with other parents of gifted children, taking a stand with the local school board and the state, and finally a very good chapter, "Advocacy is . . . Taking Care of Yourself."

Each chapter also contains several useful features. The opening for each chapter consists of boxes with examples from specific children, often in the parents' own words. There is also a "What About Your Child?" box (or boxes) with activities and/or things to think about. Additional information about the topic of the chapter is highlighted in "Find Out More."

As Jerry Flack, Ph.D. notes in the foreward, "Joan Franklin Smutny is the hear and conscience of gifted education in America." Any reader of this book will surely agree.

"MY TEEMING BRAIN": UNDERSTANDING CREATIVE WRITERS. by Jane Piirto. Cresskill, NJ: Hampton Press, 2002.

When I received this book for review, I really didn't want to open it. I was in the middle of three other books and didn't want to take the time. Later, I thought, when things have settled down a bit. Lucky for me that I couldn't resist looking inside.

Dr. Piirto, Trustees' Professor at Ashland University, is well-known to gifted educators from her earlier books, *Talented Children and Adults* and *Understanding Those Who Create.* This new title is a follow-up of the second book. What those in the field of gifted education may not know is that she is also a published poet and novelist. Her interest in creative writng is both personal and professional.

This book is endlessly fascinating. The first eveing I started reading it (just to look it over I told myself), I literally could not put it down, even as midnight was long past. Dr. Piirto' s usual eloquent style is here coupled with intensely interesting information on the lives, creativity, and production of creative writers.

This book is based on 160 contemporary or twentieth century U.S. creative writers who had significant publications and who represented a cross-section of geographical and ethnic backgrounds. During the research, a number of common themes emerged. These form the basis for much of the text.

If you have any interest in creative writing, creativity, or creative individuals, this book is well worth your time.

SMART BOYS: TALENT, MANHOOD, & THE SEARCH FOR MEANING. by Barbara Kerr and Sanford Cohn. Scottsdale, AZ: Great Potential Press, 2001.

We often speak of crises in education - low test scores, too much testing, lack of funds, loss of special programs. In the field of gifted education we have our own set of specific problems, few of which have been as ignored or have as serious consequences as that of the difficulties facing gifted boys.

Barbara Kerr and Sanford Cohn have written a fascinating book that addresses clearly and passionately many of the important issues related to the struggles of gifted boys.

In Section I, Giftedness and Masculinity, there is a description of a follow-up study on gifted men. Several important themes emerge, including social isolation, the choice between excellence and normality, problems with peer relationships, and concern about masculinity.

Section II, Milestones and Danger Zones, looks at the gifted boy as he grows from youth to adulthood, noting important stages along the way.

The third section, Special Challenges for Gifted Boys, will be where many readers look first. Some issues (underachievement) have been dealt with before, but not in this context. Chapter 9 - "They're Called Sissies, Fat Boys, and Nerds," and Chapter 10, "Gifted Minority Boys," puts it all on the table and makes the reader take a long hard look at the place where many of our gifted boys live and, unfortunately, where many of them suffer.

The last section, "Guiding Gifted Boys" contains much excellent advice and help.

Whether you have a gifted son or work with gifted boys, you owe it to yourself and to them to read this important book.

Listening to Scipio:

Making Dreams into Realities

Michael W. Cannon

Recently I picked up Iain Pears' new novel, *The Dream of Scipio* (more about the novel shortly). The title is taken from a curious work by Cicero, the great Roman orator, politician, and adversary of Julius Caesar. In Cicero's original text his grandfather, the Roman general Scipio Africanus, appears in a dream to offer Cicero advice about his responsibilities.

On rereading this work, which was widely read throughout the middle ages and was the model for much medieval dream poetry, I was particularly struck by one statement near the beginning in which Africanus tells his grandson that

> "...it will be your duty to devote to your people the beneficence of your integrity, talent, and wisdom."

Think about this statement for a moment. Africanus was talking about civic responsibilities, but it still applies to aspects of our own lives: civic, moral, and educational. In particular, these words could have been written for those of us working for the education of gifted learners in Texas. Look again at the three things that Africanus said that Cicero owed to his people — integrity, talent, and wisdom.

First, integrity, the steadfast adherence to an ethical code, the state of being whole and undivided: we must, as educators and parents, understand what is required for excellence in educating the gifted, what constitutes best practices in identification, program services, and professional development. And once we understand these practices, to be courageous in the struggle for educational parity for these students, so often ignored, neglected, or pushed aside. Keep in mind that integrity also implies being whole and undivided. The gifted advocates in Texas MUST work together and preserve unity in order to accomplish our goals, on the campus, district, state, and national levels.

We talk a lot about talent - the gifted and talented learner, etc., but what of our own talents, our abilities to educate, organize, and persuade. Unless we recognize and use our abilities to the greatest extent possible, then we are handicapped in our pursuit of fairness in educating the gifted.

Finally wisdom: the ability to judge and discern what is true, the sum of learning. With study, attention, and time we can come closer to understanding what is true about the best ways to help the gifted learner. And just as important, we learn (not without a few knocks along the way) how to work with the right people, at whatever level, to make things happen for the good of these students.

In Pears' novel, one of the three interrelated plot lines (end of the Roman empire, the middle ages, and Vichy France) concerns a young man, Olivier, who has an unquenchable thirst for knowledge. When he asks wise old Gersonides to take him for a pupil, Gersonides hesitates, but then he reconsiders:

> "He needed to learn; it was why he existed, and he would wither unless he could satisfy that need. Could such a man as himself ever turn away a fellow soul, he who had also ached with that consuming need?"

We need to remember those gifted students of today who ache to learn and who may, without our vigilance, wither.

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Call for Articles

Articles are solicited that address the theme of the issue from both the practical and theoretical points of view.

Spring 2003
IMPACT OF GIFTED EDUCATION: STUDENT PERSPECTIVES

We would like to hear from individuals (especially students) whose experience with gifted education has had a profound impact. In the description of the experience, include what was valuable, extraordinary, meaningful.

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Please keep the following in mind when submitting manuscripts:

1. Manuscripts should be between 1000 and 2500 words on an upcoming topic.
2. Use APA style for references and documentation.
3. Submit **three copies** of your typed, double-spaced manuscript. Use a 1 1/2 inch margin on all sides.
4. Attach a100—150 word abstract of the article.
5. Include a cover sheet with your name, address, telephone and FAX number and/or e-mail address.

Send all submissions or requests for more information to:

Michael Cannon, TAGT Editorial Office,
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EFF-089 (1/2003)